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ON SMUGGLING AND SAVING CHINA

By GEORGE BRONSON REA

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ON SMUGGLING

Ruminations of a Reformed *Filibustero* on Contraband, Blockade-Running, Arsenal and Arms Deals, Beating the Sanctions, Revolutions, Setting-Up New States, High Finance and other Adventures in American and Chinese Imperialism

By GEORGE BRONSON REA

Statement by Mr. Shingo Tsuda, President of the Kanegafuchi Spinning Company, the Largest in Japan

"A majority of the people in any country are consumers, as are likewise the Customs Officials. This at once hints that smuggling will be rife where high tariffs prevail. At any rate, it is true that exports of Japanese goods have not suffered from any potential decline in spite of the high tariff policies adopted by many countries. The smuggling is not conducted by us, but by business men of the countries which set up a high tariff, therefore, it is not necessary for the Japanese Government to interfere with such a practice."

Whenever the Japanese are not collecting choice pieces of old china, carrying off the Great Wall brick by brick, profaning the Holy Places of Shantung, bombing defenseless towns and villages, annexing Manchoukuo, slicing chunks out of Mongolia and reaching out for Turkestan, while doping the inhabitants with liberal shots of coke or opium, they are sure to be up to some other equally devilish trick. If there is any high crime against morality, international law or good neighborly relations they have not been charged with by the Chinese and their sympathizers, it is because they cannot be found in the calendar. We are never surprised any more when we read or hear stories about what the Japanese intend to do. We are quite reconciled to the prospect that Japan will absorb Asia, Malaysia and Australasia. It does not phase us in the least. They may even change their plans and start at Alaska, work their way down the Coast, pick up the U.S.A., then Mexico and all points South, and we still refuse to get excited. We know all about—that is, as much as anybody, and that is not much—the 60,000 ton battleships to be built secretly to carry through this program of conquest. We even chuckle when "Ham" Lewis tips us off about an alliance between Red Russia and Little Nihon for swooping down on defenseless America, while Moscow diverts our attention from impending doom by broadcasting that Tokyo and Berlin are in secret cohoots to catch her between them. All this leaves us cold; but we confess to receiving a jolt when informed that the Japanese smuggling of silver out of, and rayon into, China, overshadows their territorial acquisitiveness and calls for prompt collective measures to put a stop to it.

Preparing a Case Against Japan

Travellers passing through Tokyo *en route* from China to the United States are no longer alarmed about China's territorial integrity but seem terrified over the possibility that Japan may ruin Nanking through defrauding the customs of its legitimate revenues. The stories are many; but requests for corroborative evidence are invariably met with the insinuation that documentary proofs are filed away in the archives of foreign consulates and at the proper time will be released. All efforts to extract accurate information from those supposed to know, are met with the advice to "say nothing about the dirty business." So it is just as well to be frank and state at the outset that these charges are brought against Japanese and Koreans, who, it is alleged, are protected in the North by the Japanese Army, and in Shanghai and South China by the Japanese Navy.

The whole subject of smuggling, dealing in contraband, running blockades and beating the sanctions, is bound to become of increasing importance as Geneva tests its strength on Italy. There are phases of these problems bearing on Far Eastern affairs entirely ignored in these statements which have already guardedly found their way into print. The inside story of smuggling silver out of China has been worn threadbare. Had the American Government not made this industry highly profitable through its silver policy, there would have been no evasions of the law. For our own good reasons, we raised the world price of the white metal, and as a consequence China has been nearly depleted of her reserves. The American Government created the incentive and bankers, brokers, Chinese officials and others garnered in fat profits in legitimate exchange, while the small fry swept up the crumbs. With a somewhat fuller knowledge of the inside operation of the system and the ultimate destination of the smuggled metal, it was with some surprise that we read in a December issue of *The Japan Advertiser* a report from New York crediting the United States Treasury with the intention of smashing the Japanese smugglers who are taking silver out of China and sending it directly or indirectly to America. It was hinted that a price of 45¾ cents an ounce would be so low that the smugglers would not be able to operate. From this report, the impression is received that all of the silver drained out of China was traceable to the operations of Japanese smugglers, when, as a matter of fact, the great bulk of the exported metal passed through legitimate banking and brokerage channels. But the Chinese official profiteers, to conceal their own speculations and profits, raised the cry that the Japanese were ruining the country. Not a word about the purchasers of the metal to whom it was shipped in Europe and held there—not in Japan—for sale to the obliging American Government who bought it up eagerly at the high price fixed by Congress. Not a word about the amount of Japanese and Manchoukuo silver remitted or carried out of Manchoukuo into North China, to the point that for every silver dollar exported from China, a Japanese yen or Manchoukuo yuan flowed into the country over the Great Wall (the figures in this movement of silver were given in the November issue of this magazine in an article entitled "Silver Bullets"). These figures proved that the ultimate loser in the drain of metal was not China but Japan and, when Nanking proceeded to nationalize silver and called in the hoardings of the people, it simply meant that North China's reserves which flowed in from Manchoukuo were to be confiscated. The picture was presented of Nanking attempting to finance its war preparations against Japan with Japan's own money, while diverting attention by accusing the United States of being responsible for its financial plight!

Collective Action Proposed

On the heels of the above news item from New York came the Report of the American Economic Mission to the Far East with its reference to the smuggling of rayon and suggestions for its suppression. In view of the whispered remarks heard in this part of the world as to the evidence on file in foreign consulates and prophecies of what the League intends to do after it has disciplined Italy, the following extract from the Report is illuminating:

> "This report cannot fairly reflect the importance of the Chinese tariff situation without calling attention to the smuggling of goods into China. Coincident with the right to levy tariffs must go the power to enforce them if the open door policy is to be preserved. China at present is unable adequately to enforce tariffs placing high rates on goods susceptible to smuggling. From its very nature, the matter is one in which documentary information was not available to the Mission. That it is a real burden upon legitimate trade, however, was widely acknowledged. The annual report of the Bank of China carries an allowance for smuggling, in its estimate of the Chinese balance of International payments, in the amount of $134,000,000 for 1933 and $154,000,000 for 1934, and the Chinese Customs authorities state that of the known and recorded imports of rayon in 1934, one-third consisted of rayon seizures. This article carries a high duty, in some grades as much as 200 per cent."
>
> "The nature and source of smuggled goods, as well as the methods of smugglers and the reasons for their success, are all common talk in the Treaty Ports of China and must be noted as a very important factor in the international trade relations of China. Until this practice is eliminated, there is little encouragement for business in merchandise that pays a legitimate tariff to enter China, or little encouragement to establish industries that might be successful if the tariff were effectively administered."
>
> "Prior to the granting of tariff autonomy in 1929, Chinese tariffs were a matter of joint interest to all the Powers. The Mission feels that if China is unable to stop extensive smuggling, the matter is of equal moment to all nations and may well engage the attention of all the Powers to the end that, with friendly and sincere assistance of bordering governments, China may be enabled to make her tariff laws effective and keep the open door open."

The Duties of Sovereignty

"Coincident with the right to levy tariffs must go the power to enforce them if the open door policy is to be preserved." It might also be observed that coincident with the right of sovereignty, must go the power to discharge the rudimentary duties of government to the people governed as well as the power and willingness to assume the international obligations and responsibilities each Member State owes to the Community. If these powers be lacking and the State so recognized is unable to discharge its duties at home or abroad, becomes involved in interminable civil wars, and through disorganization, weakness and incompetency, menaces the security and existence of a neighboring state, if these practices be condoned and legalized by the terms of a perpetual treaty and the neighboring nation is compelled to take steps to defend itself, who is responsible for what happens?

Does not a large share of the responsibility rest upon those whose laws permitted and encouraged the impotent and disqualified state to brazenly flout its obligations while demanding from the Community full recognition of its sovereign status? By raising their legations to embassies, the Nations proclaimed China a First Class Power, yet these same Nations maintain war-fleets and river-patrols in the jurisdictional waters of this First Class Power to protect their shipping against pirates and ensure the collection of customs duties on which their loans are secured. They garrison regiments in its principal ports and cities to protect the lives and properties of their citizens against bandits, communists and anti-foreign outbreaks. They lay down the principle of the open door for their own trade and then deny to this First Class Power the right to seek loans in the open market for developing its railways and resources. They conceded tariff autonomy to this First Class Power ostensibly to give effect to their recognition of its sovereign rights, in reality, because the First Class Power had exhausted its credit and could give no satisfactory security for further loans or financial accommodation. It was safer to finance China through imposts on trade than to risk the failure of a loan issued on a security propped up and guaranteed by foreign gunboats.

The First Class Power in the first flush of its fiscal independence, progressively raised its tariffs step by step to where the law of diminishing returns is in full operation on many items. Not a cent of this increased revenue was allocated to repay old debts or protect the foreign credit of the state. All of it was pledged as security for domestic loans for financing the upkeep of huge armies and prosecuting wars of unification and conquest. Over $1,400,000,000 has been raised in this manner during the past seven years, largely on the security of these increased imposts on foreign trade and, if the reports of Chinese financial experts are accepted as reliable, not more than 53 per cent of the face value of the bonds floated were realized by the Treasury. Balancing the budget under these conditions was smooth sailing until the depression hit the country. Then, with falling prices, decrease in trade and customs revenues, outflow of silver and the imperative necessity of maintaining the swollen military establishment to complete the wars of conquest, the climax was inevitable.

The Precedent of Prohibition

Any state unable to discharge its elementary duties of government while imposing taxation to the point where it becomes almost confiscatory and an obstacle to legitimate trade, invites the consequences. Smuggling and other illegal practices which return great profits will flourish. There are certain basic conditions which engender lawlessness and which the power of government, no matter how strong, cannot suppress. The people of the United States once enacted a Prohibition Law, making it illegal to import, manufacture, sell, carry or possess alcoholic beverages. Every wine, whisky and beer manufacturing country in Europe, including our next door neighbors, were indignant at this unwarranted interference with a most profitable trade. Their governments covertly aided and abetted their adventurous subjects to evade our laws and land their precious cargoes on our shores. Our prohibition laws brought swift ruin to many old established European industries. Farmers, distillers, merchants and others dependent on the vast export trade built up after years of costly advertising, were deprived overnight of their most profitable market. The economic machinery of nations and the budgets of governments were thrown out of gear because Americans went on the water wagon. It is not in human nature to accept such a jolt without doing something about it. So we had Rum-Row, with our Coast-guard Fleet, fast patrol boats and an army of shore police and spies to enforce a law other Governments were interested in having repealed. All the police power of the American Government could not put a stop to this illegal practice. What we could not do when our own laws were defied, is now proposed as an international duty when our profits on a minor commodity of commerce are imperilled by smuggling into a foreign country.

An American Arsenal Deal

I recall the story of an American who sold a complete arsenal to Dr. Sun Yat-sen at a time when the latter had declared the independence of Canton and was preparing to start another civil war against the recognized Northern government. At that time an international embargo against the exportation of arms to China had been proclaimed; but there were loopholes and technicalities which made it ineffective. The Cantonese rebels were extended a *de facto* status for business reasons only and the arsenal equipment, together with certain contraband articles, after running the gauntlet of British cruisers and patrol boats in Hongkong waters, were duly passed through the Chinese Customs and delivered to the consignees. The deal was within the American interpretation of the law, but the British and Japanese adhered to a different viewpoint and would have seized the cargo as contraband had the opportunity presented.

However, as I recall, the arsenal has never been fully paid for. The enterprising American firm is still hoping that the Canton Government will pay its debts. But the Cantonese, who financed the Northern Expedition which conquered the rest of China, only to be edged out by the Chekiang clique, advance the not unreasonable argument that Nanking is responsible for the cost of the arsenal which furnished the Nationalist army with the arms and munitions which helped make their victory possible. When we view the controversy from this angle, the picture is revealed of a Government which came into power and received recognition as the indirect result of the failure of an international commitment to prohibit the exportation of arms and munitions to China. That arsenal of the best American machine tools and special equipment supplied the arms and munitions to an army which imposed the rule of its leaders over all the rest of China and which is now recognized by the Powers as representative of the whole. Without that American arsenal, Canton would still be under the rule of Peking and Chiang Kai-shek unheard of. A Government that traces its victory to an evasion, of an embargo against the importation of arms is placed in an embarrassing position when it cries out for international assistance to put a stop to violations of the customs law in other matters. When an American Mission seriously proposes international action to suppress smuggling which the Bank of China values at $150,000,000 (silver) annually, we enter the realm of high finance with profits comparable to the bootlegging of liquor under Prohibition. If the recommendation of the American Mission is followed, will it not create a precedent that may have far-reaching effects in combatting other evasions of the law of contraband? Such a remedy implies the policing of China's coastline and supervision of her Customs machinery by an international force operating under the authority of and with the sanctions of the League of Nations. Or, this police force must be directed against the State under whose protection the smuggling is allegedly carried on.

Japanese Rayon Exports to China

Although no names are mentioned, it is a public secret that Japan is the nation charged with protecting the law-breakers. The rather guarded wording of the Report, quoting the Bank of China as to the amount of international payments on account of smuggling, followed immediately by the reference to rayon seizures, with its 200 per cent tariffs, would seem to imply that this one item is responsible for the big leak in Customs revenues. The first impression is that the unnamed but seemingly well-known smugglers are making huge profits beating the Chinese Customs out of its dues on rayon and it was not until we consulted the export statistics of Japan that we realized what a picayune business it amounts to. The Chinese may have their figures on rayon seizures, but the facts on the Japanese side would seem to indicate that the source of the smuggled goods must be sought for in some other quarter. The *Japan Year Book* for 1935, gives the 1934 exports of rayon fabrics to China and Hongkong as 2,323,900 yards valued at about 33 sen a yard or a total of Y.772,000. The exports of rayon fabrics to Manchoukuo and Kwangtung for the same year were 16,344,000 yards valued at Y.5,268,000. The exports of rayon yarn to China and Hongkong for the same year were 24,786 boxes of 100 pounds each valued at Y.100 per box or Y.2,487,600; while the exports to Manchoukuo and Kwangtung were 81,858 boxes valued at Y.8,185,000.

If all the rayon fabrics and yarn exported in 1934, by Japan to China, Hongkong, Manchoukuo and Kwangtung were smuggled into China, the total would not exceed in value Y.16,700,000. Even if all the rayon sold and delivered to Kwangtung and Manchoukuo is smuggled into China, it is difficult to see how the Japanese authorities can be held responsible for the ultimate destination of every yard of rayon exported, any more than a number of European Governments could be held responsible for the cargoes of liquors exported under proper bills of lading to ports in the Western Hemisphere in close proximity to the United States from whence they were bottlegged through our police cordon and delivered to the racketeers. Two wrongs do not make a right, but once we created a precedent in the Far East to protect foreign trade in rayons, no one can foresee to what it may lead in the future.

Some Filibustering Heroes

Before getting aroused over smuggling rayon into China, it is well to pause and reflect on our own past activities in similar lines. My personal experience during the 'nineties when Americans ran cargo after cargo of arms and munitions into Cuba, while Spain repeatedly protested these violations of neutrality, and our Government, despite its vigilance, could do nothing to stop the illegal shipments, should convince us how difficult it is to enforce respect for the law when the profits are great. During the Spanish-American war, as correspondent of the old *World* I had the celebrated filibustering tug, the *Three Friends* as my dispatch boat. Its usually reticent captain, Napolean Broward, after a few Daiquiris, delighted in recounting how on many occasions he hoodwinked the American revenue cutters, coast-guard vessels and navy cruisers, and how he once mounted a bow gun and fought his way out of a Spanish coast-guard trap.

McCreedy of the *Herald*

I knew all the details of that running fight with the Spanish cruisers on the south shore of Cuba from my colleague McCreedy of the *Herald* who was on board the *Three Friends* on that celebrated occasion. The whole Spanish navy was on Broward's tail trying to head him off; but he got to the Florida keys first, and on one unnamed desolate sand spit unloaded his cargo of arms and seasick Cuban warriors before venturing into home waters swarming with revenue cutters and cruisers on the lookout to catch him with the goods. McCreedy, one of Reick's aces, was dumped ashore under protest with the rest of the filibusteros and incriminating cargo and so failed to get the story of that epic "pirate" fight with the Spanish gunboats through to the *Herald*. The jubilant Cubans in Florida gave it out before McCreedy could reach the mainland. Mac was recalled and I was ordered by Reick to tackle the job of getting through to Gomez from another filibustering angle, while "Steve" Bonsal, backed me up in Havana. McCreedy never forgave Broward for marooning him and swore to get even. He did just that and covered himself with glory by scooping the *World* with the first story of the naval Battle of Santiago, paying extra Urgent rates for his three thousand world dispatch and routing it by the way of Panama, as I recall. He passed the *Three Friends* on the *Herald* yacht as he speeded into Port Antonio on the afternoon of July 3, megaphoned a jeering insult and then yelled out some unintelligible phrase in the lingua franca of the brotherhood of the coast which only Broward understood. He turned to me and said, that Irishman has put it over both of us. And he signalled full speed ahead to his engineer and nearly tore the old tub to pieces getting back to Santiago.

Next morning as we neared the coast of Cuba, the *Hist* threw a shot across our bow, signalled us heave to, and then my gruff old *amigo*, Lucien Young, who only a week before had wiped out a whole fleet of Spanish gunboats, torpedo-boats and floating batteries at Manzanillo, came on board, mad as a hornet and yelling for a drink (Young was also a filibustero, at heart. He was very active in separating Hawaii from Old King Calico and annexing it to the good, old, U.S.A. His book, "The *Boston* at Hawaii" is a classic on how these things are done, within the law). He loudly declared that if it wasn't for the regulations and setting a bad example to the crew, he would get drunk right then. It seems that this fighting Kentuckian, the hero of the *Huron*, which went down off Hatteras, had made the mistake of his life the day before, by taking some fool message to the Admiral on his Flagship, and had to steam around on the *New York* down Siboney way, just as Cervera's fleet came out of the harbor, and because the *New York* would'nt stop to let him rejoin his command, he had to watch from the bridge of the Flagship, while "Dick" Wainright took over the job of sinking the Spanish torpedo-boats before they knew what it was all about. That favorite son of Kentucky was on the war-path, that morning, and bawled me out in picturesque old navy language because I would not permit him to confiscate a deck load of specially selected commissary stores I had purchased at Port Antonio for the ward-room mess of the *New York*. He expressed forcibly the opinion that they didn't deserve a drink for a year after keeping him out of the fight he had built his hopes of promotion on. Anyhow, I presented him with a few cases of Broward's personal stock of wet commissary goods and he passed us through the cordon. But it was too late. All we saw was the burning and battered wrecks. But I got the first inside story from both sides of how, why, wherefore, and because, Schley looped the loop with the *Brooklyn*. It was too technical, complicated and interspersed with language unfit for the gentle church-going subscribers of the *World*, to read. So to save my reputation and job, I never sent it in. When the day's work was over, Broward mixed up a big Daiquiri and we drank to the Irishman who put it over us, McCreedy. Mac afterwards married a banker's daughter somewhere down in Acadia, and reaped a well-merited reward for his filibustering misdeeds. Had the Spaniards ever captured Broward they would have stood him up against a stone wall and filled him full of lead. The good people of Florida, were so proud of this genial old filibustering hero that they elected him Governor of the State, when the war was over. Such are the rewards of a good smuggler in a good cause.

Funston, Janney and Latrobe

Then there was my old companion, Fred Funston, who after some highly successful filibustering in Cuba in command of a battery of artillery, repented, resigned and returned home to be appointed by the admiring Governor of his State as Colonel of the First Kansas Volunteer Regiment. He was one of the first to arrive in the Philippines, where his experience in Cuba gave him the edge on other militia colonels and old-army fossils, and in time he ended the war by capturing Aguinaldo in his mountain hide-out, amidst the plaudits of his countrymen. Congress rewarded him with the stars of a Brigadier-General in the Regular Army. He might have commanded the army in France had he not died down on the Border just when things were thickening in Europe.

One of Funston's fighting cronies was a young Baltimorean lawyer by the name of Janney. He is now at the top of his profession, the leading corporation lawyer in Maryland. Friends from his home town tell me confidentially that if Byrd ever tires of his job, the people of Maryland will probably elect Janney Governor of the State. And there was another fire-eater that Funston always affectionately called "the fighting fool," who sang as he went into action and disturbed Funston's marksmanship. He also hailed from Baltimore and was named Latrobe. He filibustered down to Cuba with Osborne, Funston and Janney, helped them capture Cascorro, Guimaro and Victoria de las Tunas and was called by the Cubans *Aquel diablo Americano*. He was such a lovable good-natured, mettlesome scrapper that the Regular Army let him in and he is now a Colonel of Cavalry out Omaha way, the last I heard of him. President Coolidge on one of his summer vacations in the Black Hills found him there in command of a regiment and became so attached to him that he carried him back to Washington as his Military Aide. With his beautiful Spanish wife, he came into his reward for filibustering. Not being a West-Pointer he may never command the American Army, but you never can tell. Here's hoping! They need some of that old adventurous spirit in the new American army to pep it up.

And Karl Decker

There was another companion of Cuban days who carried out a job of jail-delivery that if pulled to-day in the United States, would transform the hero into a Public Enemy with an army of "G" men ready to shoot him down on sight. He helped a very demure and beautiful little Cuban girl escape from a Spanish jail for women in Havana where she was incarcerated, charged with being a rebel or a spy. So Karl Decker, a six-foot filibustering reporter of the Jack Dempsey type (only a much handsomer man than Jack), busted into the jail through a hole in the roof, sneaked the girl out, deposited her on an outgoing steamer and delivered her safe and sound to Hearst, who turned out New York City to welcome the rescuer and rescuee and capitalized it as the biggest newspaper stunt of the age. Decker became a national hero overnight. Now Evangelina Cisneros was not ill-treated in that Spanish jail for women. There is no record of the Spaniards deliberately executing a Cuban woman as a rebel or even as a spy. Those "brutal butchers" of Weyler's never eliminated women charged with espionage as was done by both sides in the Great War, or cut their heads off as in Nazi Germany. Decker broke the law of Spain and we all loved him for it. It could'nt happen to-day. Americans have become highly civilized, respectable and law-abiding. In fact, we are cranks about law, but we don't know how to observe or enforce our own.

Barcardi

I once campaigned with Antonio Maceo, when Weyler with an army of 20,000 had him bottled up in the Rubi Hills in Pinar del Rio and you could'nt move around without butting into a Spanish column or worse still, some of their *guerrilleros* on the lookout for any stray *Mambi* foraging too far from camp that they could machete and claim a victory. One of Antonio's aides was a highly *simpatico*, popular and engaging young blond Adonis by the name of Emilio Barcardi, who with "Manolo" Piedra (now Cuban Minister in China) Alberto Nodarse and a kid by the name of Sanvanell were the most active trouble-hunters I ever met. Both Piedra and Nodarse stopped about eighteen Mauser bullets and looked like human sieves when the war was over. Emilio saved my life on one occasion. His father at that period operated a small distillery in *el Oriente* and few outside of the Island and Spain never heard of his special brand of *aguadiente*. When the thirsty American army marched into Santiago on the 7th of July, 1898, within a few days they finished all the visible stocks of whisky champagne, wines, brandies and cordials, in celebrating their victory, and it began to look as though they would have to climb on the wagon for the duration of the war, when they discovered Barcardi's still and declared a national holiday. They drank Barcardi rum in every process of distillation. They mixed it in every conceivable way, invented many new and formidable drinks and, when the war was over and the boys returned home, they had acquired such a thirst and taste for this ambrosia of the Caribs, that Barcardi had to hastily build a new distillery to fill his rush orders. His fortune was made.

Even my old colleague, "Dick" Davis, stopped off once at Santiago de Cuba as the guest of the manager of the Diaquiri Mines who introduced him to that mixture of Barcardi and limes, called after the mines. The memory of those days in the sun and the thoughts of those Daiquiris lingered long in Davis' mind until he sat down and wrote his classic, "Soldiers of Fortune," all illustrated with Gibsonesque heroes and heroines of the 'nineties and, although the country in the story was imaginary, the real scenes centered around Santiago, the manager's house and the memory of those Daiquiris. Rockenback of the Tanks, then a fiery kid lieutenant, in charge of Wood's engineering work in Santiago, grabbed that secluded house of romance as his private residence, and maintained its traditions of hospitality by keeping in stock the chief ingredients of the drink that made it famous. In other words, it was a potent and inspiring drink. During Prohibition years, I found in all parts of the United States, especially in the high class clubs, ample stocks of good old genuine *Carta Blanca*, sufficient evidence for me that my old filibustering side-kicker of the days when the world was young, had reversed the rules of the game he learned under the watchful eyes of Uncle Sam's Revenue Cutters. They tell me that Emilio is no more, that he has gone where all good filibusteros eventually go, but that the Barcardi fortune is one of the largest in Cuba, that their main office in Habana, a modernistic sky-scraper, is one of the show palaces of the city. Far be from me to suggest that the Barcardis engaged in the gentle pastime of rum-running. They didn't have to. The thirsty *Americanos* did that part for them. But the great fortune is theirs, the rewards of filibustering on both sides of the fence. I always keep a bottle of Carta Blanca in the house and when alone I sometimes raise my glass and drink to Emilio, a good Filibustero, a Libertador of Cuba.

Sun Wen

Then there was my other great and good friend, Sun Wen, the most successful filibustero of them all. The Manchus for many years were keen after his head and made several unsuccessful attempts to collect it. Even after he founded the Republic of

China, he had to fly to Japan to save his headpiece from the hatchetmen of Yuan Kung-pao. Then his own people down in Canton turned against him and on two occasions he just escaped being extinguished by a miracle. He finally died a natural death, and is entombed in a mausoleum which has become the shrine of a Nation.

This filibustering and fighting-for-liberty business has its thrills and rewards. Also its penalties. If one side, don't get you, the other will. The Koreans shot up Prince Ito, then Stevens their American Adviser. Chinese Gun-men bumped off Lenox-Simpson in Tientsin for advising Yen Shih-shan. The financial genius of Nanking had to fight his way through a mob which opened up on him at a railway station. He saved his bacon, but they killed his faithful little friend, Yu Lu-tang, who was connected with this magazine. Even the great Generalissimo woke up one night just in time to see his trusted guard preparing to put him to sleep forever. They all wear bullet-proof vests now and carry shoulder holsters. I am informed that even the American Counsellor for Manchoukuo, whose only crime was to act as lawyer for the defense, is on Nanking's list as Public Enemy No. 1, and that the Blue Shirts and Blood and Thunder Boys are after his scalp. Its a great life, if you don't weaken, that is while it lasts.

An Anglo-American Monopoly

A new generation of Americans, forgetting their origins and struggles for liberty, is now opposed to any such adventures on the part of their countrymen, which their fathers condoned, applauded and rewarded. It was highly commendable and patriotic for individual Americans to fight for liberty under the Lone Star Flag of Texas or Cuba, enlist in any of the many Latin American revolutions or endeavor to plant the Star Spangled Banner in Central American or Caribbean republics, but the American who only espouses the cause of liberty in this part of the world becomes a disturber of international peace and the balance of power.

The game that was so successfully played for centuries by the British and for nearly a century by Americans, is outlawed. Now that there are no more loose islands or backward countries for the adventurous Englishman or American to annex, civilize and govern, or oppressed people to help throw off their yoke, it becomes a high crime against international law to disturb the *status quo*. But we set the example and taught other people how to do it. So where the Anglo-Saxon left off, the Japanese have started in. To-day, all successful filibusteros hail from Nihon.

O'Hara of Nihon

There is one of these Islanders with a name that any good son of the " Old Sod " might easily mistake for Danny O'Hara and trace his ancestry back to that patriarchal progenitor of all good Hibernians, King Melesius. This D. O'Hara of Nihon writes his name Doihara, showing how the Japanese mistook the apostrophe for an " i " and clear proof that the French and Spanish are not alone in working over and mispronouncing good old Irish fighting family names. Doihara has been dubbed by foreign newspapermen the " Lawrence of Manchoukuo." He is still actively filibustering around the edges of old Cathay, setting up new states and advancing the cause of liberty according to the strategic requirements of the moment, in the same manner that all his Anglo-Saxon compeers so successfully did their country's job in other parts of the globe and with the same prospects of great reward.

All the Anglo-Saxon adventurers who would like to emulate his new methods and do a little more Empire building for their respective countries, are jealous of the success of this Nihonese, who has beat them to it. They say unkind things about him, besmirch his character and belittle his motives. But Doihara goes his own way. He is already a Lieutenant-General and someday may command the Army of Nippon, the highest reward of patriotic filibustering.

Its the Same Old Game

The reformed and repentent wrong-doers with their pockets bulging with the loot of past misdeeds now define filibustering as an act of aggression and refuse to recognize any new set-up brought about by such methods. But their condemnation cannot alter facts. Call it filibustering, aggression, invasion, conquest, self-defense, protection of vital interests, or what you will, the Japanese move in Manchuria broke the power of a bandit despotism and provided the opportunity for its people to declare their independence. This old filibustero of an older generation can see no difference in what Japan has done in Manchuria and what Americans so proudly accomplished in several parts of Latin America and Hawaii. If, after nearly a century of plotting, planning and casting covetous eyes on the Island of Cuba. Americans were justified in the " name of Humanity " or protection of their investments, in separating this last colony from the rule of Spain, under the pretext that we were freeing its inhabitants from tyranny, then the Japanese, with greater and more compelling reason, are justified in freeing the Manchurians from the yoke of a brutal, merciless, blood-sucking bandit overlord, concealing his crimes behind the banner of a Republic which we recognized as the real thing.

The war for Cuban independence could not have endured a year without the aid and comfort of Americans who violated the neutrality law and landed the much needed arms and munitions which alone kept it going for over three years. The independence of Cuba is the result of successful smuggling, encouraged by a sympathetic American public opinion. The present Nationalist Government of the Republic of China came into power and received recognition as the result of a somewhat similar operation which provided the Cantonese revolutionists with the arsenal which turned out the modern rifles and munitions for arming their forces. The American arsenal contractor (an ex-official of the American Government), was within the law as interpreted by the State Department. The British authorities at Hongkong, the Japanese admiral in command in South China waters and the *de jure* Government of the Republic of China, held other views as to the legality of the proceedings. Here, again, we find a difference of opinion, with the American viewpoint strongly biased on the side of revolution and " Liberty," finding legal loopholes which effectively nullified the embargo. All perfectly legal and aboveboard.

A Dose of Our Own Medicine

We had to take a dose of our own medicine in the Far East when the gun-runners of the China Coast delivered their cargoes to the Filipino patriots. That was also a lucrative business in which many highly respectable foreign hongs participated. It took us about the same length of time to crush the Filipinos as it took Spain to wear down the Cubans, but it was one thing for the " cruel," blood-thirsty Dons to take so long mopping up in the Pearl of the Antilles and something quite different when it became necessary for Americans to force the blessings of civilization on their " little Brown Brothers " by the same method. Our tender hearts could not stand the sustained horror in Cuba, so in the name of Humanity we dispatched our army and navy to halt the massacre. We took nearly as long to crush the Filipinos and for the same reasons that delayed Spain in doing her job in Cuba. The American army could have imposed its rule over the Far Away Isles in less than a year had the Chinese Government enforced the laws of Neutrality. Ten thousand American troops lost their lives, thousands more were disabled and $600,000,000 expended before the Filipinos surrendered and our civilizing mission was ended. It was not pleasant when we were the victims. In fact, we did not like it and expressed forcibly our opinions of these arms-merchants. Yet, these little brown men of the East were fighting for the same thing that won our sympathy and admiration in the Caribbean. Our Cuban chickens came home to roost in the jungles of Luzon.

A Chinese Definition of Rebellion

The other side of the arsenal picture is seen in Manchuria, another vast territory embraced within the sovereign jurisdiction of the *de jure* Government of the Republic of China. It also had declared its independence of the Central Authorities and for business purposes was conceded a *de facto* status by foreign Governments. The mind of its war-lord also ran towards armies, conquests and arsenals. In fact, he specialized in arsenals and in course of time built up the largest arms-making plant in Asia at a cost of nearly $100,000,000 Gold (after taking it over, the Japanese military engineers estimated it could be duplicated with Japanese equipment for Y.100,000,000). Supplying the Mukden arsenal with machinery and accessories became the most profitable business in Manchuria, with American firms deriving a fair share of the orders. At one time an ex-American consul-general acted as adviser and purchasing agent of the war-lord.

The Canton Group bought their arsenal to make China " safe for Democracy." The Mukden arsenal supplied the arms and munitions to a bandit regime which set out to keep China safe for Militarism. Both sections had refused to recognize the authority of the *de jure* administration and on various occasions issued proclamations warning foreign Powers that they would not recognize any loans or treaties entered into with the recognized Government. In international law, they were rebels. In China, a new definition has been found to justify rebellion. The provinces **" never took the position that war against the Central Government was an act of rebellion. It was, in their eyes, simply a struggle for supremacy between their faction and another one which happened to reside in the national capital and to be recognized as the Central Government by the Foreign Powers."** So says the Report of the Lytton Commission.

Strange how some people lose all sense of proportion in discussing the problems of China. With that definition on record, the supply of arms to these independent Chinese factions becomes quite legal. Their only purpose is to shoot up the *de jure* Government. This new definition of rebellion is advanced solely to uphold a verdict denying to the people of Manchuria their right to break away from such a system. As long as any faction continues to fight the *de jure* authorities, they are well within their rights. But the moment this same province or faction decides to withdraw from the fight and asserts its independence, then, and only then, does it become a rebel. International law supports the *de jure* Government, penalizes the rebel province and refuses to recognize its status.

Demoralizing a Great Race

Up to the time they declare their independence they are accorded a *de facto* status for business reasons only and all nations vie with each other to sell them aeroplanes, arms, munitions and arsenal equipment. To this remarkable interpretation of international law is traceable the growth of the Chinese armies to 2,500,000 men in violation of a pledge given at the Washington Conference to reduce them to less than a million ; it is responsible for the arming of another million or more bandits and communists and the complete demoralization, degradation and prostration of a great and fine people.

Excluding the Mukden plant, there are now twenty-two arsenals in China, six in the *de facto* Northern provinces, twelve in Central China under control of the *de jure* Government and four in the independent, *de facto* South-western Group. The arsenal and arms racket remains the most profitable " legitimate business " in China. The program for compulsory military training, the proposed mechanization and modernization of the huge Chinese armies as proclaimed by Nanking, tells us where the " merchants of death " will find their most lucrative market in the years to come. The *de facto* status of the Northern and South-western tier of provinces and the prospective emergence of a all-Mongol and all-Mohammedan independent state, together with the requirements of Chiang Kai-shek's *de jure* Government will keep these twenty-two arsenals working overtime, calling for immense quantities of imported raw materials which will enter and pass the Customs under industrial headings. With tanks, motor transport, aeroplanes, machine-guns, high explosives, chemicals and other requirements for modern warfare that must necessarily be imported, the future holds bright for increased orders. War material supplied to the *de jure* Government at Nanking to enable it to consolidate its rule over the whole country becomes a highly honorable, commendable and legal business. Precedents would seem to indicate that the same war materials delivered directly or indirectly to the *de facto* North and South Governments are also within the law so brilliantly interpreted by the League Mission. On the other hand, Nanking will probably dissent from this decision of what constitutes rebellion and, wherever possible, will seize and confiscate the cargoes as contraband.

Inconsistency of the Law

Where are we to draw the line ? At what point does it become essential to invoke the aid of the Community of Nations to put a stop to such practices ? Is it more illegal to smuggle a luxury commodity into a country than to engage in large scale operations in arms and munitions to be used in the overthrow of an established government ? Let us pause and ponder over certain political angles of this problem which have a bearing on the present neutrality and non-recognition policies of our Government. We are so accustomed to making our own law and judging our own case, that we overlook some of the inconsistencies. It is not necessary to go beyond our activities in Cuba and the more recent legalized adventure in Canton. In both cases, established governments were overthrown as the indirect result of the activities of our citizens. We finally went to war with Spain, because she could not crush a rebellion that was being kept alive by American arms smuggled into Cuba. We freed Cuba. An American arsenal delivered to a *de facto* Cantonese government enabled it to overthrow the *de jure* regime and we recognized the victorious rebels as soon as they were established in the old southern capital.

When the Japanese in sheer desperation were forced to defend their interests in Manchuria and later supported the Manchurians in their declaration of independence, we announced that we could not recognize any new state brought into being as the result of force. Yet the Manchurians merely followed the precedent set by Canton. There is no difference in principle between the two incidents. American citizens found a flaw in the arms embargo which enabled the Cantonese to uphold their declaration of independence and with the assistance of Moscow overthrow the Peking government. The United States was the first to recognize the new Cantonese regime.

The people of China merely exchanged a group of Northern tyrants for a Southern group equally as bad. The Manchurians, bled white under the new dispensation, seized the first opportunity that presented and declared their independence of the Canton-Chekiang Clique ; while Japan in pursuit of her own interests, allied herself with and recognized the new State. This, however, was a violation of treaties as we interpreted them and our Government hastily proclaimed a new law, refusing to recognize the accomplished fact.

Here we have two instances where force was employed to overthrow established governments and in both we find American citizens involved in furnishing the arms and munitions or the machinery to manufacture them, to the rebels, and the American Government the first to recognize changed conditions. With these precedents in the record, the Stimson Doctrine carries with it the obligation on the part of the United States Government to prohibit all future exports of arms and war material that might be employed by an oppressed people in freeing themselves from bondage and setting up their own government. The liberty-loving people of the United States must henceforth abstain from all activities such as in the past have characterized their general sympathetic attitude towards peoples struggling to free themselves from tyranny. The picture of China points a moral. As a result of a business deal which contravened the spirit, if not the letter, of an arms embargo proclamation, a Chekiang oligarchy masquerading under the symbol of Democracy has established its rule over several other independent provinces of China and maintains it by means of an air force largely supplied by American manufacturers and directed and schooled by American aviators.

Canton Wants a Steel Mill

Cheated out of their victory in 1927 by Chiang Kai-shek, the Cantonese have since been feverishly preparing to regain their supremacy. Held fast by the terms of a treaty to a nominal allegiance to Nanking, the South-western provinces are for all practical political purposes independent, enjoying a *de facto* status recognized tacitly not only by Nanking but by foreign Powers. The testimony submitted before the Senate Committee investigating the arms traffic, reveals how this *de facto* status was recognized by an American trade commissioner interested in seeing that American manufacturers got their share of Canton's aeroplane business.

For several years, this *de facto* Cantonese Government has been planning to erect a steel works. The American firm to whom the contract was awarded would have long ago succeeded in financing it had it not been for the protests of the recognized government at Nanking. Canton chiseled a $3,000,000 arsenal out of Americans and then refused to pay for it. It now hopes we will present it with its corollary. This plant is not to be used for making munitions. Bless your soul, those restrained, lamb-like Cantonese are concerned solely with building up a nice profitable peace-time industry and only ask the United States to finance it for them through the Export-Import Bank. Nanking, however, understands exactly what the plant is required for. It fought its way to supreme power largely through the generosity of the Americans (aided, of course, by Moscow) and entertains no illusions about the uses a steel plant in Canton will serve. With the exception of a few special rifling and cartridge-making machines, arsenal equipment could pass the customs as ordinary machine shop or manufacturing plant. It is not so easy to camouflage knocked-down blast furnaces and rolling mills, so the chances are that it will be a long time before it is erected.

A Cure for Smuggling

To return to smuggling. If, as alleged, the Japanese army and war-ships are protecting the smugglers and interfering with the Chinese Customs authorities in the performance of their duties, a problem is created which calls for careful diplomatic handling. International or collective action will merely aggravate the situation. After all, rayon is not a necessity. Why not reduce the excessive duties to where evasion of the Customs is no longer profitable ?

For a long period, the high American duties on diamonds and precious stones made smuggling a lucrative though hazardous business. The Treasury was annually mulcted out of immense sums, in addition to the expense of maintaining a special world-wide secret service to combat the smuggling rings. By reducing the duty to ten per cent, smuggling automatically disappeared and revenues have increased. Two hundred per cent duties on any commodity is a powerful incentive to break the law. The Chinese Government has the right to impose the tariff it pleases on any commodity to raise revenues to cover its expenditures. Instead, however, of urging international action, might not the same object be accomplished by requesting the Chinese Government to live up to the 10th Resolution of the Washington Conference and reduce its armies to less than a million men ? If this drain on its resources could be diminished, there would be no need for 200 per cent tariffs and other equally severe handicaps to legitimate trade. Large scale smuggling would cease. On the other hand, should China be supported by international action in its enforcement of such high duties, it is obvious that once guaranteed against smuggling operations, the Chinese Government will proceed to raise its customs duties all along the line to meet the increasing demands of a military establishment it was pledged at Washington to reduce.

Japan Should Worry

Then, smuggling will become a national pastime, like booze-running under Prohibition. In this connection, it is well to ponder over the sapient remarks of Mr. Tsuda, President of the largest spinning organization in Japan, which heads this article. We might have commenced and concluded right there, as they very thoroughly and succinctly answer the American Economic Mission, but there were so many interesting side-lights and ramifications to this highly patriotic enterprise, that we felt justified in inflicting our ruminations on this highly interesting subject. Who can read English history and not thrill to the stories of piracies on the high seas on which the great and mighty British Empire was founded. As Liddell Hart says in " The British Way in Warfare : "

> " The process began when Elizabethan business men invested their capital in expeditions that were little different from piracy. And although the process later assumed a national complexion, the economic foundation could have no more apt illustration that the fact that it was under the name of a Company that we gained our Indian Empire."

And now that the process is finished, when there is nothing left to pirate or backward peoples to govern, reformation and repentance has set in. The Great Renaissance of the 20th Century is being led by those whose pockets are bulging with the spoils of past glorious misdeeds and who decline to make restitution. But the grand old game of smuggling goes on. Might not the Commercial Empire of the Future arise from the present world-wide attempt on the part of nations to erect tariff walls so high that it will become a highly patriotic sport to beat their own customs ? Who knows ?

Mr. Shingo Tsuda, President of the Kanegafuchi Spinning Company, the largest in Japan, and perhaps in the world, and, in consequence, the heaviest exporter of Japanese textiles, undoubtedly knows better than any one else where his products are going, but like the titled British whisky makers in the House of Peers, is not in the least concerned as to how they reach the consumers as long as his part in the transaction is within the law. We reproduce in a separate article some pointed remarks of Mr. Tsuda, collected by *The Japan Times*, and invite attention here to the fact that notwithstanding the intensifying restrictive measures adopted by foreign countries to exclude Japanese textiles, the number of spindles in the country doubled in the last decade and Mr. Tsuda predicts that they will double again in the next ten years, reaching 20,000,000 by 1945. This means that markets must and will be found and, if the restrictions against the importations of Japanese textiles are still further intensified, the ultimate consumers within the high-tariff countries will find their own solution. Japan does not have to worry about smuggling. Others will take care of that end for her.

The Pirates of the China Coast

Should the recommendation of the American Economic Mission be acted upon, what would become of the sovereignty and independence of the First Class Power known as " China ? " The customs law of that country then becomes the concern of the whole world, simply because exorbitant tariffs unsupported by adequate police power, offer inducements to *contrabandistas* safer and more profitable than blockade-running or circumventing the sanctions of the League. Now, it may be true that the nationals of a certain country are more active than others in this new racket, but it is always well to remember that the most adventurous law-breakers East of Suez, are our old friends, the pirates of the China Coast. The combined squadrons of all interested powers co-operating with the Chinese navy and coast-guard patrol, has not succeeded in suppressing the activities of these jolly freebooters of the Eastern seas. Hardly a month passes that some ship is not pirated, looted, and its passengers held for ransom. Time after time their rendezvous in Bias Bay has been shelled and the inhabitants driven into the hills, yet as soon as the gunboats withdraw, the pirate community returns and sets up business at the same old stand. And Bias Bay is only one of the many pirate strongholds along the China Coast. Withdraw the foreign war-ships from the China station and it would not be safe for any foreign steamer of medium tonnage to navigate these waters.

It is natural for the Chinese authorities to point the finger of accusation at the Japanese and Koreans as principals in this new racket and to allege that they are being protected by the Japanese army or their war-ships. This may or may not be true. I am not suggesting extenuating circumstances to justify breaches of the law. But it is safe to wager that for every bolt of rayon seized from Japanese or Korean smugglers, two or three are slipped into the country by the pirate junks that line the coasts and infest the tidal creeks of China. If, after all these years, the combined foreign and Chinese Government fleets have been unable to eliminate this scourge, how long will it take, if these hard-boiled law-breakers get well started on a new racket more profitable and safer than holding up an occasional tramp or China coaster for ransom ?

Kwangsi Retorts "Oh Ye-ah!"

Let us look at the picture as revealed in the news of the month. Notwithstanding the widely advertised Communist cleanup in the Yangtze Valley and the " vivifying influence of the New China " so glowingly pictured by the American Economic Mission, we are informed by the press that the Chinese Red Army is again on the rampage, back on its old stamping ground in South Central China advancing into Kweichow and Yunnan, with the main army only a few miles from Kweiyang. Ten crack divisions of Nanking's " ever-victorious army " are rushing to the front and all those nice " small stone or concrete towers " dotting the landscape are bristling with machine-guns. Five divisions of Kwangsi troops are said to be advancing into Kweichow, but whether to co-operate with Nanking or block the highways and hold the mountain passes so that Chiang's divisions do not stray out of their bailiwick, is a matter of considerable speculation, with the odds on the last supposition. As late as February 9, Canton reports that as Nanking has refused to pay the expenses of the anti-communist campaigns in Kweichow and Yunnan, it is impossible for it to assume responsibilities for subjugating the Reds.

Outsiders are prone to forget that Canton furnished the funds for equipping and carrying through to a triumphal termination the Northern Expedition and, that Chiang Kai-shek with the financial and moral backing of the Shanghai bankers and commercial interests, kicked them out and set up the Nanking Government. Every once in a while Canton advances its claim for the repayment of these expenses, but Nanking is deaf in one ear and cannot hear out of the other. It refuses to disgorge. So when the *de jure* recognized Nationalist Government of the United Republic of China issues instructions to the South-west to dispatch armies to suppress the Reds, Canton thumbs its nose, twiddles its fingers and responds: " Oh Ye-ah! pay up or shut up!" The South-west armies may move towards the borders of Kwangsi but their real objective will be to shove the Reds back on Chiang and keep the latter on his own side of the fence.

Canton Out of Luck

Here, again, we are permitted to view the reverse side of this smuggling picture. When Canton was a rebel against Peking and declared its independence, American firms with the support of their Government, conceded it a *de facto* status for business purposes and gleefully sold it all the arms and arsenal equipment it required. But now that Chiang Kai-shek and his intimate family, linked together through the distaff side, and advised by a group of brilliant American advisers, are in the saddle at Nanking, the American Government is very solicitous about its success and scrupulously exacting in its idea of neutrality. Aeroplanes, motor vehicles, arms, munitions and other war material, flow in a steady stream from American ports for delivery to Nanking, which, in its turn, now prohibits the South-west from enjoying the benefits of an independent and *de facto* status on which it owes its own rise to supreme power. American citizens can sell no arms or war equipment to the Governments of the Two Kwangs. This now constitutes a violation of neutrality, smuggling, arms-running, or whatever you want to call it. Americans must respect the law and uphold the American-educated Group now in power.

(There was one of these American-educated boys who remained true to his traditions, loyal to his province, his clan and his family, resigning his post as Chinese Minister to Washington rather than countersign the export documents for the shipment of aeroplanes purchased in the United States by Nanking for the purpose of bombing his people into submission. Of all the group, the name of Dr. C. C. Wu stands out as a true patriot, one Cantonese who remained loyal to his clan, when all his American educated colleagues surrendered their principles and fought for jobs and preferment under the Chekiang war-lord. Dr. C. C. Wu had an Oxford training superimposed on his American public school education and stood by his principles. Whether right or wrong, he had the courage of his convictions, a rare trait in Chinese officialdom).

Japan to the Rescue?

Because the American Government will not accord the Canton of Li Tsung-jen the same *de facto* status it extended to the Canton of Sun Yat-sen, and European Governments are adhering religiously to the revised moral code against gun-running, we find the Cantonese professedly intensely anti-Japanese, purchasing arms and munitions in Japan and engaging the services of Japanese army officers as advisers and instructors! If this report is true, it would seem that Japan now recognizes the *de facto* status of Canton, while the United States stands behind Nanking. Generalissimo Chiang Kai-shek chased the Reds out of Central into North China where he hoped they would join up with their Soviet comrades in Mongolia and work their way into Manchoukuo. Japan acted quickly, erected a formidable buffer autonomous state and shoved the Reds back towards the Yangtze. There we find them, once more in Yunnan and Kweichow, trying to break through into Kwangsi or Kwangtung where they can seize and hold a port that will enable dear Old Moscow to rush in new equipment and war material. Nanking would heave a sigh of relief if the hordes of Ho Lung and Hsiao Keh would only slip over the Kwangsi border and break the power of the South-west *de facto* group. Faced with this menace, the South-west, turned down by America and Europe, seeks aid and comfort from Japan who, true to her program to rid China of the Red menace, sells the South-western Group the arms and munitions necessary for their defense. It will not be long before we hear another howl of indignation from Nanking against this flagrant breach of international law, violation of the Nine Power Treaty and an appeal for collective action to put an end to it.

Where the Money Goes

The Bank of China's allowance for smuggling in its estimate of international payments compared with the total Japanese exports of rayons to China, Hongkong, Manchoukuo and Kwangtung, valued at Y.16,000,000 would indicate that commodities other than rayon are responsible for these payments. Investigation would probably disclose that a large share of that unaccounted for $154,000,000 charged to smuggling, are payments for arms entering the country destined for the use of those independent factions who take the position that war against the Central Government is not rebellion but a struggle for supremacy with the *de jure* faction, whose only claim and title to rule is the recognition extended to it by foreign Powers who insist upon turning a fiction into a reality regardless of the rights or sufferings of the people. It is quite within the realms of probability that the *de facto* South-western Group is receiving arms and munitions that do not pass through the Customs or figure in its returns. If Canton could slip through a complete American arsenal, prevail on another American firm to enter into a contract to finance and erect a steel mill and an American Trade Commissioner recognized its *de facto* status to facilitate the sale of aeroplanes and, remembering that this Group has sworn to be revenged on Chiang Kai-shek, it should not be difficult to hazard a guess as to the destination of the hundred million or more dollars of unaccounted-for international payments charged to smuggling. This does not signify that Canton is resorting to such practices. It may well be that these payments represent the price paid for bombing planes and new equipment for Nanking, and the Bank of China has discovered a way to conceal the payments by charging them to smuggling. A Government that must be prepared to hold its position by force of arms against several independent factions awaiting the opportunity to supplant it, while announcing its determination to rearm and mechanize its fighting forces in order to try conclusions with Japan, is not likely to make public all of its purchases.

How about Opium?

Those upstanding, God-fearing members of the American Economic Mission, keenly intent on their own affairs, evidently knew nothing about a commodity called Opium. Which is another and very long story woven into the whole fabric of China's modern history. While in China, the members probably accepted the hospitality of representatives of firms whose great wealth was founded in the opium trade and in evading the Chinese prohibition laws against its importation. There are many big fortunes in China—also in Europe and India—amassed as the result of successful opium smuggling. Time has purified the sticky gold and banknotes wrung from the degradation of a Nation. A very brief examination into this disreputable business would have convinced the American Mission how difficult it is to enforce a law whose violation returns such huge profits. Should an American Church or Uplift Mission make a report on conditions in China, it also would probably advocate collective sanctions against the activities of Japanese and Korean smugglers and peddlers of narcotics and remain mute about the enforced growing of opium in nearly every province as a means of filling the war chests of the militarists.

Try and Stop it

With the friendly co-operation of the Japanese Government, a co-operation I have no doubt will be freely given, it may be possible for China to enforce her tariff laws and keep the open door open, as far as meeting the requirements of good neighborly relations and removing the stigma implied in the American Report. But experience teaches that as long as 200 per cent tariffs make smuggling profitable, ways will be found to circumvent the law in exactly the same manner that the American Prohibition Laws were successfully defied and set at naught until repealed. Direct importations of Japanese rayons might even cease but the trade would be driven underground. The Japanese trader would only have to split his profit with the Chinese pirate. Those Bias Bay boys could load up anywhere on the Formosan Coast and land their cargoes in South China without molestation. Or, cargoes could be transshipped from Japanese fishing boats outside the jurisdictional waters of China and the Chinese pirate or smuggler would do the rest. After our experience with the Prohibition Law, Rum-Row, Biminy Bay, Barcardi Cove and "I'm Alone," not to mention narcotics and the evasion of our immigration laws and, recalling how impossible it has been to suppress piracy in these Eastern Seas, it takes considerable courage to suggest international action to suppress a similar lawless industry created by China's desire to penalize Japan through the imposition of an almost prohibitive tariff on a luxury commodity.

Before advocating collective action to protect China, why not request the Chinese Government to assist the United States in enforcing its own laws? I do not know what the figures are today, as it is one subject the Department of Labor is very reluctant to discuss and when it does, it soft-pedals the issue. However, we recall that in 1927, at the height of a nation-wide Tong war which the police of our principal cities were powerless to suppress, as a last resort, the Chief of Police of New York City proclaimed that if the war did not terminate at once, he would round up and deport every Chinese in the city who could not produce proper papers of admission into the country.

This threat had the desired effect. At that time it was estimated by the Federal immigration authorities that over 100,000 Chinese were in the country illegally and, that it would cost the Government at least $25,000,000 to round them up and deport them. But nothing was ever done. The American Government will never resort to these drastic measures against the Chinese, for the simple reason that should the threat of wholesale deportation be carried out, it would start a boycott against American goods in China before which the anti-Japanese agitations would pale into insignificance.

Canton's Economic Colony

The United States (and the Philippines) have become the preferred economic colonies of Canton. The annual remittances of Chinese resident in the United States to China, average $25,000,000 Gold, or about three times the profits on American exports to that country. These remittances, representing only a portion of their savings, would indicate gross profits of at least $100,000,000, equal to the value of all American exports to China. A large proportion of this sum is extracted from Americans by aliens bootlegged into the country. Owing to the depression, the volume of these remittances may have considerably decreased in the last few years, but the above figures represent a fair average.

The 1930 census shows 75,000 Chinese legally residing in the United States as against 61,000 in 1920, an increase of 14,000 in ten years, this, notwithstanding the exclusion laws. The census shows 59,802 males and 15,152 females, so unless the Chinese resident in the United States are marrying white women whose offspring automatically become American citizens by birth, the inference is that all Chinese females in the country are fertile and have doubled their numbers in ten years (which of course is preposterous) or, a large part of the increase is due to wholesale evasion of our immigration laws. This glance at the figures would suggest that the earlier estimate of the Immigration authorities is not far from the truth, testified to by the many newspaper stories of the activities of our Border Patrol and the smuggling of Chinese into the country from Cuba and the Caribbean Islands. In every conceivable way our immigration laws are violated. The Chinese seep through all barriers erected to keep them out. Evidence brought to light in a recent raid on a New Jersey hide-out for bootlegged Chinese, disclosed that they became slaves, bound under contract to work out in some Tong-owned establishment the cost of their passage and smuggling fee of $1,500, at a wage of twenty cents a day!

Our First Duty is to Ourselves

The point we desire to make is this. If these 60,000 Chinese males legally entitled to residence in the United States (and an equal number there illegally) can remit $25,000,000 annually to China, which necessarily represents savings, there is something radically wrong with our definition of Portals.

The American Open Door for China was designed by a man by the name of John Hay who copied the specifications from the British patent office. It permits Americans to extract about $10,000,000 a year in profits from the sale of American goods to that country (of which about 25 per cent are purchased by Japanese firms in the United States), and we hand back $15,000,000 in missionary, uplift and charitable work, expend $20,000,000 or more for gun-boats and marines to protect them in distributing this charity, pay a further $5,000,000 in ocean subsidies (to which must now be added the trans-Pacific air mail), and we hold $45,000,000 in frozen debts, repudiated and defaulted loans owed by the Chinese Government, while 75,000 to 150,000 Chinese drain $25,000,000 a year out of the United States, and presumably have an equal amount to their credit in American banks. There is something decidedly wrong with our mentality about Doors. Any analysis of the figures prove conclusively that it is a one way swinging contrivance designed solely for the benefit of the Celestial.

Keeping the open door open may have become the paramount duty of Americans even to the point of urging collective action to make the Chinese tariff laws effective, but as one very humble forgotten American citizen and at the risk of being called disloyal, I would very meekly suggest that the interests and well-being of the American workman and his family come first and, that the American Government might make an effort to enforce its laws for the protection of its own citizens before it gets all wrought up about the evasion of the laws of a country whose subjects are the principal violators of our own laws. And, if anyone desires to take issue on this subject or challenge these figures, they have only to dig into the records for the facts of how these immigration laws are constantly being set at naught and how much it is costing the Government to maintain its Border Patrols and other agencies created to keep the Chinese and other Asiatics out of the country. Whatever small loss is incurred by American manufacturers through the evasion of China's Customs by Asiatic smugglers or pirates, is more than offset by the costs to the American Government in enforcing its laws against the same lawless groups. When it comes to protection, the figures and evidence would indicate that we are a little twisted as to who needs it most. Instead of collective action to assist a First Class Asiatic Power to enforce its exorbitant tariffs with all that this implies as to cost, international friction and waste of energy, it would seem that those who stand most in need of strong law enforcement are the people of the United States. I may be wrong about this. Our first duty may be to China.

The Price of Collective Action

After the League finishes with its present experiment in sanctions against Italy and restores its prestige in world affairs, it will be time enough to talk about collective action to keep the open door open in China. We are seriously informed by one authority in Geneva that the League's action in regard to Italy is only a dress rehearsal or a first full trial of the machinery. The real test, he says, will come later in the Far East. And, if that test be successful, we can say *sayonara* to the independence and sovereignty of a First Class Power whose inabilty to discharge its international duties, set the League machinery revolving.

China will automatically come under the jurisdiction of the League and international control will supersede the fiction that forced collective action.

Harbor in Ceylon

In view of the demand for improvements in the Galle Harbor, which would render it a first-class port capable of accommodating ocean liners, it is learned that the Harbor expert from England, due in Ceylon in November, will be asked to report upon this question.

Several years ago, the attempt to develop the port of Galle was given up owing to the engineering difficulties involved and the enormous expense of overcoming them.

As a result, however, of the requests of several members of the State Council, the problem is again to be examined, and it is understood that advantage is to be taken of the services of the expert in question to arrive at a final decision on this matter.

A full report on all the technical aspects of the project will be asked for, and it is learned that even if major operations to develop Galle Harbor prove to be out of the question on the score of their expense, a less expensive scheme for carrying out worthwhile improvements to the port may be devised.

"SAVING CHINA"

Aeroplanes or Railways?

With Some Observations on High Finance, Collecting Debts, the Open Door, Purchase of Railway Materials and other More or Less Related Subjects

By GEORGE BRONSON REA

NANKING is again facing its periodical financial crisis. The Government has been tided over several severe emergencies by the Chekiang Group of Bankers in Shanghai, operating in close harmony with the Treasury. In fact, many of these Chinese banks were especially established to handle government bond issues, so it is not strange that most of them never publish their balance sheets.

It is estimated that only 53 per cent of the billion and a half dollars in domestic bonds issued by Nanking, were realized by the Treasury and, that half of the outstanding bonds are held by these semi-official banks as reserves against bank-note issues. Owing to the low issue price of these bonds bearing a nominal interest rate of six to eight per cent, the actual returns average at least twice as much, while in 1932-33, the average yield was about 24 per cent.

It would seem from these figures that over the course of a few years the banks have received their money back and present interest returns are "velvet." As the majority of these loans are secured on surplus customs and other revenues practically guaranteed by the presence of foreign war-ships, and on consolidated taxes levied on commodities largely manufactured by foreign concerns, they become gilt-edged securities for the Chinese investor. What the foreign powers would never do to protect their own bondholders when the security for their loans has been seized and interest payments defaulted or repudiated, they have cheerfully done to establish a credit for Nanking on which to raise nearly a billion and a half in loans to consolidate its authority. Should foreign cruisers be withdrawn from Chinese waters, all loans secured on the Customs, foreign and domestic, would soon be in default.

Those Defaulted American Loans

There may be excellent reasons why foreign powers whose loans are secured on China's Customs revenues should interest themselves in the protection of this security, but there are none justifying American war-ships to co-operate in such measures. Whenever an American war-ship lines up with those of other powers for such purposes, it becomes, not an instrument for the protection of American interests, but an auxiliary police force of Nanking for the collection of revenues pledged as security for European and Chinese domestic loans. What the American Government will never do where the interests of its own citizens are involved, it willingly performs for another Government that declines to honor its just debts to American bondholders and merchants. It will co-operate with the fleets of other creditor nations to safeguard the Chinese Customs, a service in which Americans, after contributing to its success, were excluded from the highest post, and whose revenues are ear-marked as security for every gilt-edged foreign and domestic loan, not one cent of which can be alienated to pay the legitimate debts owed to American manufacturers of railway equipment or to assist the one American engineering firm whose confidence in China forced it into bankruptcy.

This calls for an explanation. In 1919, the defunct Pacific Development Corporation, the holding organization of a group of American trading firms which included Andersen, Meyer & Company of China, trusting in the honor of the Chinese Government, loaned it $5,000,000 (U.S. Gold) on its promise to pay. There was no security. Had this loan been repaid when due, the Pacific Development Corporation could have weathered the storm of 1922. It went under. Because its subsidiary, Andersen, Meyer & Company had outstanding claims and unpaid bills against the Chinese Government for engineering plant delivered, installed and in operation, it became necessary for a group of American manufacturers headed by the General Electric Company and the Baldwin Locomotive works to take over the concern and keep it going. This $5,000,000 loan is still unpaid.

It was the same story with the Continental and Commercial Bank of Chicago, which also trusted to the good faith of the Chinese Government and loaned it $5,000,000. When the loan became due in 1919, China could not pay and it had to be extended. The Vice President of the Chicago Bank issued the statement that China's credit was so good that the loan did not require any security. American investors are still hoping that the interest will be paid.

Chinese Government obligations to American manufacturers and bondholders, with accrued interest, now total about $45,000,000, a picayune sum compared with its other debts, but they have this rare distinction. **They were advanced on the honor, the good-faith and the general revenues of the Chinese Government, a sacred obligation that takes precedence over all others.** Yet these trusting Americans have witnessed at various times the dispatch of American war-ships to China Coast ports threatened by rebels or communists, to safeguard the Customs revenues of a Government which will not honor its obligations to Americans!

Slicing A Melon

As a result of American initiative, tariff autonomy was conceded to Nanking in 1928, and the import duties since raised step by step to the point where the revenues from this source have been quadrupled. Yet not one copper of this increase has been set aside for the payment of these debts owed to American firms, while a billion and half dollars in domestic loans have been floated at the average issue price of 53 to bolster up a Government that traces its triumph to an unpaid for American arsenal, and its continued supremacy to a faith in its honor and good intentions expressed in the Soong-McMurray treaty which conceded to it full independence in tariff matters.

The American Government will bring no pressure to bear on Nanking for the payment of these sums owed to American manufacturers for goods delivered, in use and in some instances, outworn, but will support it morally, with credits and with war-ships while it slaps on increased tariffs and finds excuses to avoid paying its just debts to American firms that trusted in its honor. The policy of the American Government towards these matters is obviously the reverse of the good, old maxim; "Charity begins at Home!"

Nanking is now resorting to a compulsory consolidation loan of $1,460,000,000 at six per cent in exchange for all these older issues. In addition, it will float a $340,000,000 Recovery Loan and a $120,000,000 Railway Loan. This will bring the total of domestic loans issued by Nanking and secured by the Customs, Consolidated Tax and other imposts on foreign trade and activities, up to $1,920,000,000. Because of the intimate relationship between the Treasury and the Banks holding over 50 per cent of these bonds and on which presumably they have reaped a hundred per cent return, the new Consolidated, Recovery and Railway Loans is like taking money out of one pocket and putting it in another.

In addition to the above juicy interest payments, these semi-official banks in close touch with the Treasury, took full advantage of a highly speculative bond market, issued bank-notes against this bond reserve, advanced industrial loans averaging 16 per cent interest and speculated in real estate. They piled up huge profits. As Nanking has been a silent partner in many of these banking establishments, the proposed new issues might be likened to a partnership settlement or slicing a melon. There being no more gilt-edged assets guaranteed by the good-natured foreign Powers, now is the time when all good Banks must come to the aid of the Party.

Some inkling of the truth is revealed by the newspaper report of a conversation between Mr. Chen Ying-ming, Shanghai's financial magnate who, as representative of the Shanghai bankers, called on Generalissimo Chiang Kai-shek to file a protest against the coercive renewal of the old short term loans into long term obligations, just when many of the old issues were about to mature.

The Generalissimo pointed out in reply that the bondholders had not suffered in spite of the fact that owners of real estate and hard silver had lost heavily. With this picture of high finance, made possible by collective foreign action in safeguarding (against rebel interference) the sources of China's main revenues, it is seriously proposed that this joint action be extended to make their collection effective.

It is a wonderful idea. It means that the American taxpayer would have to pay for a few more cruisers for service in Chinese waters as an additional guarantee that foreign bondholders will receive regularly their interest payments on due dates and Nanking will not be defrauded out of a cent of revenue that might deprive the semi-official banks of a security on which to underwrite a loan for a few more hundred millions at 53.

A Tabooed Subject

The stories that have found their way into public print of the vast sums held in banks in the United States and Europe to the credit of high Chinese officials, together with the more recent rumors of the profits accruing to this same clique and their immediate families from speculation in silver, in any other country would long ago have resulted in a judicial investigation and, if true, in the disgrace and imprisonment of the guilty, the confiscation of their fortunes and overthrow of the government. The true facts surrounding the conduct of China's finances would reveal practices which put to the blush operations which in the United States and England have sent several eminent and titled captains of industry and finance to jail.

However, these matters can only vaguely be hinted at, for the reason that only a few weeks ago, the *Shen Pao*, one of the leading vernacular periodicals of Shanghai, closely connected with the Generalissimo's Blue Shirt organization, was ordered to close down publication for good because it attacked editorially the speculative transactions in the security market by people closely connected with high officials of the Government, and because it also opposed coercive renewal of the bonds. So about all a good American can do, is to uphold the transaction and concur in the recommendation of his Government that the enlightened Nanking regime has handled the financial problems of China in the most admirable and efficient manner and extend to it his most hearty congratulations. It is not often that such a privilege is vouchsafed to an admiring and amazed critic and, we have no doubt that with the tightening of the bonds between the "Two Great Sister Republics," the time will arrive when the financial genie of Nanking will be invited to assist in straightening out the tangle of American finances and monetary confusion.

American Pikers

After all, the New Dealers of America are one-way Specialists only. Just beginners. They haven't even grasped the rudiments or the possibilities of the game. They are merely Spenders, throwing away other people's money like drunken sailors. When the debauch is over and they wake up the morning after to be told "that's all there is, there is no more," and they rush to the printing presses for another shot to keep them going, they will need expert advice and guidance to teach them how it must be done in the most efficient and legal manner without starting a spontaneous revolution. As long as they work the presses quietly without unduly jarring the nerves of the people and can circulate the pretty little notes with only sporadic protests, mass meetings of indignation and local uprisings, they can get away with it nicely. How to prevent this discontent from developing into a general uprising, that is, something spontaneous, is an art that can only be learned or copied from the East.

A League of Nations Commission has laid down the dictum that minority revolutions resulting in the setting up of new Governments are no longer legal nor can they be recognized. To merit the approval and recognition of those who supervise the world's morals such a revolution must be spontaneous. So, as long as the New Dealers work within the new code and do nothing that will start a spontaneous explosion, they are within the law and world opinion will uphold what they do. But they will need coaching from those who have mastered the art. Of course, even when most effective, methods vary. As in ordinary medicine there are many new fangled offshoots of the good old allopathic school.

Some give it homeopathically, others prefer the chiropratic method of hammering it in, while others, like the country where the idea germinated, prefer the Christian Science way. For instance, in Manchuria, Dr. Chang adhered to the ages-old Mongol method handed down by Ghengis and Tamerlane, of suppressing discontent, preventing it from spreading or becoming spontaneous. His rival in Nanking, Dr. Chiang, accomplishes effectively the same thing in the name of Democracy, operating under the style of a Republic. But like Fascism, Naziism or Communism, there is only one Party and Chiang, the Generalissimo, carries it around in his pocket.

The Wizards of Cathay

The New Dealers have got well started along the same road by adhering to Mrs. Eddy's philosophy that it is all a state of mind, and may have to change the treatment if the patient is to survive. And the only successful remedy ever devised for controlling spontaneous epidemics is the good old allopathic prescription which Americans themselves once applied in ridding themselves of a copper colored scourge. But new ideas have come into vogue. A new generation is being schooled in Christian Science methods. Whatever happens elsewhere, it cannot happen to America. The only experts who have preserved their proficiency in the art while keeping within the law and the canons of international respectability, are to be found in China. Their record shows they have eliminated about thirty million objectors in the last fifteen years without detracting from their great popularity or standing in the Community.

We live in lively anticipation of learning that the wizards of the Tsai Cheng-pu have been invited by their admiring colleague in Washington to head a mission of experts to investigate, report on and formulate ways and means to enable the American Treasury to cover its expenses and balance its budget.

Nanking underpaid the Kemmerer group for its invaluable report and advice. It cost about $400,000. The prescription was worth millions. Just see what a few injections of the revivifying extract of the American gold cure can do in the case of a broken down, busted, silver and copper addict like China. It has quadrupled the revenues from foreign trade, consolidated all taxes on the output of foreign industrial establishments such as cotton yarn, oil and tobacco and, miracle of miracles, it has conjured out of the hat, security after security until: Presto! TWO BILLION DOLLARS! Wonderful! We need wizards like that in the United States to tell us how to do it, before some new experiment or Dr. Townsend, Dr. Lewis, or some other quack finishes the patient.

Dr. Chang's Methods

Or, we might call on Dr. Chang, another world renowned specialist of Old China who conducted a clinic in the old Manchufu at Mukden. He used a treatment that never failed. Over a period of years, this ambitious practitioner unloaded seven billion dollars in unsecured paper notes on his clients after forcing them to deliver to his collectors the produce of their daily toil. If they objected, they were gently prodded in the slack of their baggy trousers by a long, finely pointed surgical instrument, vulgarly called a bayonet, and if they then expostulated, the Big Scalpel separated them from that part of their anatomy which gives forth objectional sound. He was very successful. By these methods he collected the fees wherewith to keep an army of 400,000 bayonet-prodders and build the largest factory of surgical instruments in Asia. Some people ironically call it an arsenal. By hook, crook and close attention to details he and his concubines, his favorites, intimates and assistants finally secured a strangle-hold on every business that showed a profit. His banks issued irredeemable paper notes by the ton, pretty ones too, illustrated with highly colored scenes of pastoral life and enlivened with Confucian verses and sage advice as to how the bearer should work hard, be thrifty, save his money and put it in Chang's banks for safe keeping. He pegged the exchange and those foolish money-changers who held strange ideas about the relative value of unsecured bank-notes to hard cash and undersold the market, were rounded up and conducted to the Operating Grounds outside the city where they received prompt relief from further financial worries. He speculated in securities, his own mostly, manipulated and cornered at will the wheat, grain and bean markets and accumulated all the loose change in his bailiwick, to the point where his income was even greater than that of his rival at Nanking. Moscow believes it has shown the world what State Socialism can do, but in its wildest dreams it will never equal the precedent set by old Dr. Chang and his son in Manchuria. He and his intimates got it all.

Young Dr. Chang lost his practice in Mukden and is now going to school under his colleague, learning the more modern and painless system at his new place of business at Sianfu. He is a very competent young man, of good presence, charming manners, has a keen eye for beauty, is well liked, extremely popular with the fair sex, has travelled abroad, owns a palatial air cruiser, plays golf, poker, also mahjong (Chinese war-lord style), fox-trots, likes a cocktail but prefers champagne and is altogether a good fellow and good company. With his great wealth, titles and many accomplishments he would become a social lion in the United States. In fact, he is so admired in high circles in Washington that it is confidently hoped that he will in due course re-establish himself in Mukden. His advice would be of inestimable value at this juncture.

How to Collect a Claim Against China

As we write this commentary, the news dispatches (February 15) tells us that the United States Treasury has purchased 50,000,000 ounces of silver from the Chinese Government at 65 cents per ounce and that China has deposited the proceeds amounting to $32,500,000 in New York banks. Secretary Morganthau paid a high tribute to the Chinese officials' manner of handling financial matters and pledged the co-operation of the United States Government in helping China to solve her monetary problems, the idea being to keep the yuan from becoming tied to the pound sterling that might work to the disadvantage of the United States in the event of a monetary war. We were under the impression that the monetary war was now on. Perhaps we are mistaken in this and are only witnessing the preliminary skirmishes.

This is the first time for many years that the Chinese Government has ever had so much money to its credit in the United States that might be attached to satisfy its American creditors. Once before it was caught napping, and had to pay up. For over sixty years, the heirs of that old New England filibustering hero, Frederick Ward, had a claim against the Chinese Government for salary and other expenses owing to him as commander of the Chinese armies that fought the Taipings. As usual, Peking refused to pay.

However, let us be fair. The Chinese honored the brave old fighting Yankee adventurer by erecting a temple to his memory at Sungkiang and an American Legion Post is named after him. Every Memorial Day, the China remnant of the doughboys who drove the Germans back to the Rhine, foregather at this shrine to place flowers on his grave and recount his warlike deeds. Ward, the American, then Charles Gordon, the English engineer major, trained and led the Chinese armies that saved an empire for the Manchus, while Robert Hart, a genial Irishman, took over and collected honestly the customs duties on behalf of the tottering and effete Ta Ching dynasty. Hart became famous as the Great I.G. and was knighted by his Government. Gordon of the engineers became a General in the British army and added the Soudan to the Empire. Had not the Mahdi massacred the Khartoum garrison and its gallant commander, the name of Gordon would have shone in the peerage of a grateful country.

The American, Frederick Ward, died in poverty, an unknown and unsung Yankee adventurer. When his destitute family meekly advanced a claim for the salary and moneys due him by the Peking Government, the State Department made no move to press for payment beyond a perfunctory filing of the claim. The British find ways to honor and reward their adventurous sons who advance the prestige of the Empire. An American who labors to advance the interests of his country is left stranded if he gets into trouble, and if successful, is rewarded in the usual way Republics have of expressing their appreciation.

The Ward heirs finally placed their claim for collection with an international law firm in Washington whose senior partner acted as Counsellor for the Chinese Government. Even this good friend of China could not prevail on Peking to honor its just debts. Time passed and then in 1907, the great and good American Government at the solicitation of its missionary and educational element, remitted its share of the Boxer Indemnity to demonstrate its great love for the Chinese people. This was the opportunity of a lifetime for American creditors to press their claims. So the international law firm in Washington in close contact with the State Department and the Chinese Government, went into swift action and arranged that China could not receive the benefits of the remitted indemnity until the fifty year old claim of the Ward heirs was settled—with accrued interest. China paid.

How Dr. Reinsch Was Paid

I recall the case of Dr. Paul S. Reinsch, another adventurous and gifted American college professor who sacrificed his career as an American diplomat to accept the post of High Adviser to the Chinese Government at a salary of $25,000 a year. He proceeded to Washington, opened his law office and labored incessantly to advance the interests of his client by conducting a campaign against Japan. It will take twenty-five years of hard, up-hill diplomacy to counteract and undo the labors of Reinsch. We may never undo them. His salary checks failed to come through on due dates so he borrowed from friends on the strength of his contract with the Chinese Government until finally, after two years, he owed over $40,000 and could stand the strain no longer. He travelled to Peking, confidently expecting that once on the ground his troubles would be over. For nearly six months he importuned the Peking authorities to settle his account only to become convinced at the end that they had no further use for him.

He departed from Peking, broken in spirit and in health, facing dishonor. On his arrival at Hankow, he was carried from the train to the hospital with a mental breakdown. His condition worsening, he was brought down to Shanghai and died in the General Hospital. At the last moment, the Chinese were shamed into sending him a few thousand dollars, but it was too late. Their breach of contract, ingratitude and callous indifference, killed the man who had swung his government into line with his policy and then sacrificed his career to conduct their fight. I do not know whether his widow has ever been paid what was owing to him but his intimate friend, who holds his dishonored notes, has informed me that they are still in his possession. That was the reward that fell to one sympathetic American whose displomacy saved China from coming under the domination of Japan in 1915.

The Opportunity of a Life-time

Mr. Morganthau has pledged the support of the American Government to help China solve its monetary problems, but what will this philanthropic official do to assist American bondholders and defrauded manufacturers of railway equipment to recover the moneys due them? That $32,500,000 is nearly two-thirds of the total debts due to American corporations, all of them members of the National Foreign Trade Council. It would seem that the opportunity of a lifetime has again presented to collect something on these defaulted bonds and unpaid bills for materials. If the American Creditor's Association is as keen on its own affairs as it is on China's, its lawyers will be on the job attaching these funds to satisfy its claims. Once again American charity and solicitous concern for the welfare of China has made possible the payment of repudiated American claims. The State Department is in close touch with this Creditor's Association and has taken over the task of collecting these accounts. It will be interesting to watch how our adventure in linking the yuan to the dollar will work out, if some brilliant lawyer for any one of these American creditors attaches these funds for his clients. Will Charity Begin..........?

There is a recognized international law of reprisals for the redress of injuries inflicted upon the State in its collective capacity, or upon the right of individuals to whom it owes protection. It consists in the forcible taking of things belonging to the offending state and holding them until a satisfactory reparation is made for the alleged injury. However, it is only in cases where justice has been *plainly denied or most unreasonably delayed* that a State can be justified in authorizing reprisals upon the property of another nation.

Its a Long Way from Kwalah Batoo

That law held good in days of long ago when governments were governments and protected their citizens abroad, when, rather than pay tribute, the infant American navy cut its teeth on the Barbary corsairs, humbled their pride and destroyed their power. The next time you see the oldest American Marine Regiment swinging down Pennsylvania or Fifth Avenue, take a look at its regimental colors and somewhere in a long list of unintelligible names, you will find "Kwalah Batoo" which means in English, that these Leather necks after finishing the Bey of Tunis, mopped up another nest of Moro pirates in far-off Sumatra who emulated their Barbary co-religionists by massacring the infidel crew of an American trading vessel and thought they could get away with it. Who was it said, "Perdacaris alive or Raisuli Dead." Perdacaris was a Levantine Jew, who happened to be an American citizen that the Moors of Morocco captured and held for ransom.

We have travelled a long way from the Barbary Coast, from Kwalah Batoo and Perdacaris. Nowadays, we meekly pay tribute to pirate and bandit governments to retain their goodwill and trade as long as they camouflage their depredations under the cloak of "Democracy." What do we care if American ships are fired on by communists, pirates or bandits in Chinese rivers or costal waters? What business is it of ours if American citizens are captured by bandits, tortured, maimed, killed or, when most fortunate, held for ransom? What does the great, rich and powerful United States care if Chinese war-lords and recognized governments order large consignments of goods from American merchants and, after delivery, refuse to pay and our traders go into bankruptcy? Our "Great Sister Republic," with whole sections ruled by bandit oligarchies can do no wrong and the American citizen who does business with them, does so at his own risk. The American unfortunate enough to be caught outside the Treaty Ports and held for ransom by bandits, can expect no return to the stern policies of an age that would have sent the American navy and Marine Corps after the outlaws. Those things are now outmoded and illegal.

How McVay Did It

We had one American Admiral of the Asiatic Fleet who threatened to do this very thing a few years ago, with astonishing results. His name was McVay. The telegraph lines from Tsingtau to Tsinanfu sizzled rushing through a message to war-lord to turn over to the American consul an American citizen the Chinese authorities were going to try for murder for defending himself against a midnight housebreaker. And the Admiral merely casually remarked to the High Chinese officials who lunched with him on his flagship, "what a pity it would be if I had to send my Marines in this broiling weather on that long, hot and dusty, railway journey to Tsinanfu to take charge of the prisoner." Nothing more. It was understood. And that diplomatic old sea-dog and his equally nonchalant Colonel of Marines would have carried out the implied threat had the whole Shantung army stood in the way.

* * *

That Railway Loan

It will be interesting to watch the expenditure of the $120,000,000 Railway Loan under the American interpretation of the Open Door. As the proceeds from this domestic loan will be entirely Chinese money, the Government, presumably, can purchase the materials where it wills. As a sovereign First Class Power, it may decide to encourage home industries. It can place all the orders with the manufacturers of one country, irrespective of price, and remain within its sovereign rights. It can, if it wills, invite international tenders, but there is no law that can compel it to do so. If it should resort to this method and award the orders to the lowest bidder, what chance would the American manufacturer of railway equipment have in competition with Europe and Japan? No one foreign nation is entitled to preference in the distribution of these orders, but as a matter of fairness it should be confined to the British, French, American and Japanese whose war-ships have protected the only security that has made the railway loan possible. It seems obvious that Belgian, German and Czechoslovakian manufacturers can submit the lowest prices and terms on any open tender for these materials. Would this be a violation of the Open Door, unfair to those naval Powers who have assisted the National Government of the Republic of China to maintain its supremacy, by according it tariff autonomy and protecting its customs revenues? Suppose all these orders are placed in Japan on a price basis, would the unsuccessful bidders view the transaction as an infringement on their rights to equal opportunity? There are a lot of other interesting questions that may arise over the distribution of these railway orders. Unless this observer is greatly mistaken, we are in for a fine display of diplomatic fireworks when the Chinese Government, using its own funds, makes its own interpretation of the doctrine of equal opportunity. That is, if and when, this $120,000,000 is actually expended in the construction and equipment of new railway lines.

What Do We Mean by the Open Door?

If all this money is invested in new railway construction, it would build and equip nearly one thousand miles of new lines. About half, or perhaps 60 per cent, would go for the purchase of materials, a nice market for foreign manufacturers of railway rolling stock. This is the first time that the Chinese Government has floated a public railway loan. The Peking-Suiyuan line was built from the surplus profits of the Imperial Railways of North China while the Manchurian lines were financed by defaulting on payments owed to the Japanese for similar construction and by draining the wealth of the people into the treasury of the war-lord through the issuance of enormous quantities of irredeemable paper notes. In both instances, the open door principle as interpreted by the Chinese, permitted Americans to compete and obtain some fine orders, many of which are still unpaid. A Chinese railway loan, free from foreign audit and supervision of expenditures, opens up the broad question of the proper definition of the Open Door and, furthermore, what will constitute guarantees of payment for materials purchased abroad and delivered in good faith.

It is all very well for American State Department officials to reiterate the adhesion of their Government to the principle of the Open Door, but what will it do when trusting American traders deliver their goods through the door and payment is refused or delayed from year to year until the banks can no longer carry the Chinese paper and forces the trader into bankruptcy?

The American Government will undoubtedly exert its powerful influence to induce the Chinese authorities to invite open tenders for these materials, but if any of these orders are awarded to American firms and payment is not forthcoming after delivery, what then will be its policy? Will it merely politely protest as it has done with the war-debts and other moneys owed to Americans from abroad, and let it go at that, or will it intimate to the Admiral of the Asiatic Fleet that something should be done about it and leave it to him to collect? Will the American manufacturers of rails, bridges and rolling stock who have been stung in the past, again compete for these orders without some such guarantee? We could mention names, but it is sufficient to state that they are all big corporations, members of the National Foreign Trade Council, and allegedly, all heavy contributors to political campaign funds. Will they be protected if they re-enter the Chinese field? Or, will their interests be subordinate to the automotive and aircraft industries who have found a profitable outlet for their products in Nanking's campaign of unification and which are paid before delivery?

Can Americans Compete?

The Open Door opens for the entrance of railway materials and then swings shut against the outflow of payments, while with war-materials, payments are generally exacted before they pass through the portals. This is not a healthy conception of the doctrine, nor does it fit in with American ideals. Equal opportunity in the supply of these railway materials must necessarily apply to all nations, Japan included. Also to those European nations who have no great stake in the country and whose warships or troops have not participated in the process of unification. From the latest quotations on locomotives, cars, rails, bridges and general equipment, it would seem that the Japanese manufacturers could easily submit the lowest tenders.

The Japanese Government, intent upon protecting and advancing its own interests, might bring pressure to bear on Nanking to have these tenders accepted should it show a tendency to award them elsewhere at a higher price. After the efficiency record of their own railways equipped with rolling stock produced at home, the Japanese will not meekly accept defeat or the rejection of their tenders on any such pretexts as inferiority of material or failure to meet specifications. That old trick can no longer be safely resorted to nor can the argument be sustained. The South Manchuria Railway, now fully equipped with Japanese-made rolling stock, with its fine record as the most efficiently and most profitably operated railway in Asia, refutes any argument that might be advanced against the quality of Japanese materials. What is good enough for Japan and Manchoukuo, should be good enough for China.

Will the Open Door Doctrine principle operate to give the preference in the supply of these materials to Japan or will American manufacturers be able to cut their prices sufficiently to underbid the Japanese ? Here we face a severe test of the doctrine of equal opportunity that we never thought would arise when John Hay wrote it into international law. In this picture we see the conflict between the two standards of living outlined in strong colors. It tells us that if America's heavy industries are successfully to compete with those of Japan, they can do so only by government subsidies in the form of export bounties, long term credits and other assistance that will enable them to hold their position in the Chinese engineering market.

Future of American Trade with China

This subject could be extended indefinitely, but sufficient has been said to cause us to pause and ponder over our future trade prospects under our loose conception of the open door. My personal experience and observation leads to the conclusion that like the original Monroe Doctrine, the theory of the Open Door has been stretched to cover almost anything we object to in China. Each administration, each individual official and each American firm, places its own construction on how, where, and when the Doctrine comes into play. It is wearisome and unprofitable to rehash old controversies which lead nowhere. Sufficient to restate that approximately 60 per cent of American exports to China are confined to the four staples, oil, tobacco, raw cotton and wheat. About 20 to 25 per cent of our exports is what Japanese firms in New York purchase for direct shipment to Japanese enterprises in China. The balance, say 25 per cent, or roughly $25,000,000 represents miscellaneous goods, which our traders have to fight for in competition with other nations, and which in the last analysis constitutes the Open Door.

Because we have never loaned the Chinese Government a dollar for railway construction, never opened or operated a mine or financed any large scale industrial enterprise in China, we have no continuing market for our engineering goods in that country, except what Chinese capital is willing to concede to us in order to hold our sympathy and the support of our Government. Our trade in the four basic commodities stands on its own bottom, regulated entirely by world prices and our ability to meet them. We can hold our own indefinitely in the export of petroleum and its products. We can, for a while, hold a large share of our cotton and tobacco business, though this is liable to dwindle as China increases her acreage in these crops. Wheat is a highly competitive commodity, with almost the certainty of our sales being entirely cut off as the farmers of Manchoukuo diversify their crops. In plain words, the four principal items of our trade with China, are not susceptible of any great increase. On the contrary, we must expect to see it reduced to almost nothing in the course of the next decade. Japanese purchases of American materials for their enterprises in China, may or may not hold up, according as our government shapes its policies.

The China market of the future will therefore be confined largely to our ability to sell the products of our heavy industries, and this will require something more than oratory and credits through the Export-Import Bank of Washington. I make the simple statement that China will never be unified, nor the power of a Central Government firmly established, until the country is linked together with a national system of railways, that will permit prompt military operations and, what is more important, the transportation of its crops, its coal, its ores and other products to the markets. Motor vehicles and aeroplanes may contribute their share, but without railways, China will never coalesce into a strong, unified whole and develop a market such as we have built our hopes upon.

Lost Opportunities

We have had our opportunities and rejected them. I am not going over old ground. What is passed, is passed, and there is no use of crying over spilt milk. Our government tiresomely keeps sounding the same note, like a harp with one string, declaring its faith in and its purpose to uphold the principle of equal opportunity at a time when these opportunities are fading away and we may wake up to find that the door is closed, even while the principle remains.

America's one hope of realizing on its dreams of huge profits from the Chinese market is to return to its older conception of the doctrine of the open door for the benefit of its heavy industries, and that means some program that will assist China to build its transportation system. It can no longer be carried out by international financial consortiums whose component groups act as the official instruments of their respective foreign offices in carrying forward national policies. We have tried that for twenty-five years and not one mile of railway has been built.

International jealousies and the failure of any sort of co-operation as conceived under the old system, is responsible for China's present deplorable condition, and for this failure, the American Government must assume its full responsibility. It may not be too late to remedy our mistakes, but in any new program for the rehabilitation of China greater consideration must be given to Japan's viewpoint and interests. Japan should be taken at her word. If we hold to the opinion that she cannot be trusted, the greatest assurance that China's interests will be protected is to work with her rather than against her.

That Japanese Bogey

Japan's miscalled Asiatic Doctrine, means exactly what the original declaration of Monroe was intended to cover in America. A doctrine of self-defense, nothing more, nothing less. Like the United States she may twist and turn that doctrine inside out to cover the exigencies of any particular situation, but as long as the independence and sovereignty of China is maintained, little harm can come from it, and, as in the two America's, as the years go by and China grows stronger, the Doctrine will die a natural death and a new pact of mutual assistance will take its place.

There is no necessity for the United States to get all wrought up over the possibility that Japan will conquer China, place her under tutelage, monopolize her trade and close the door. Japan declares that she wants to see a strong, united China, that she can work and do business with and announces that she is willing to make considerable sacrifices to bring this about. Why Japan should want to see a strong China is something that only the Japanese understand and can explain. What will happen when China is a strong nation, is another story. The Chinese have their own ideas about that. They also have large and growing commercial interests in other Asiatic countries. In fact, for many years they have practically monopolized the retail trade of many of these South Sea communities and with the growth of their industries, backed with the same kind of diplomacy that they have learned from the West, will not be long in asserting their rights. If Japan is content to see this happen, that is her worry, not ours.

American and Japanese Policies Harmonize

When Japan announces that she desires more than anything else to assist China and raises her legation to the status of an embassy to give emphasis to her word, it is merely a matter of interpretation. Her policy then becomes identical with that of the United States, so succinctly set forth by Professor George H. Blakesley, adviser to the Lytton Commission.

> . . . . . . "But the most effective means of settling not only the outstanding questions of the Far East but the issues between Japan and the United States would be the development of a strong China, friendly to other states and liberal in its economic relations. In the meantime, it is the judgment of the world that Japan should abandon its present China policy."

There is not so much difference between the American and Japanese viewpoints if there was some way of clarifying the two policies. Japan means what she says. She is honest and honorable enough in her intentions, but her ways are not our ways, and we cannot expect them to be. She knows the Chinese and how to deal with them. If she is benevolent, conciliatory and willing to surrender something, the Chinese interpret it as a confession of weakness and press for further advantages. For over ten years, the Liberal cabinets of Japan pursued this policy until the Chinese were ready to kick them out and the Army had to intervene. It would be the same to-day. The Hirota policy is no different in essence from that of Shidehara, always hoping that the Chinese will accept his viewpoint. Unless there is complete accord between the Japanese Foreign Office and the Army and Navy it would be only a question of time when a situation similar to that of 1931 would be duplicated, and with more reason, as the independence of Manchoukuo has complicated and made difficult any understanding or rapprochement. Coached by Geneva and its American Advisers not to commit herself, China will never come to any fundamental solution of its difficulties with Japan based on the recognition of Manchoukuo.

Without Japan's full friendship and co-operation, China is not likely ever to become unified and strong. Japan cannot exploit China, nor can she do much in the way of real economic co-operation with her limited surplus of capital for investment. Even if Japan had this surplus wealth to pour into China, she would be ill-advised to do so. As matters stand to-day, with the League, the United States and Soviet Russia, holding out the promise to China that in due course Japan will be disciplined and, in view of the latter's preparations to defend herself against such collective punishment, she would be foolish indeed to risk any further large capital investment in China that might later on be confiscated under the new definition of enemy property rights so brilliantly interpreted and executed against Germany.

Until some amicable adjustment based on the recognition of Manchoukuo is arrived at between China and Japan, all talk of economic co-operation between the two countries involving the investment of Japanese capital, is like betting against the case card in faro.

Japan's previous experience in financing China has taught her a lesson and it is not likely that she will take any further chances until the game is played according to the rules. It is for this reason that for the past six months while the Japanese press has been printing glowing accounts of future Sino-Japanese economic co-operation and development, we have declined to grow enthusiastic over the prospects. We realized that Japan was in no financial position to carry out any such program.

These truths are gradually dawning on the Japanese and they are now saying less and less about capital investments in China.

On Unification

That being the case, how can China be assisted to put her house in order, disband useless armies, suppress banditry, build a national system of railways to link the provinces with the Capital and with each other and unify the independent factions under one strong central government ? If we are to adhere to the present policy of drift, recognizing the right of one faction to impose its rule over all the others by the sword and concede to this favored group all the time necessary to accomplish its purpose, the answer to the above question is obvious. China will never be unified. Or, should the miracle work, it means further interminable civil strife, marching and countermarching of armies, battles, bombings of cities and towns from the air, and the slaughter of countless more millions of splendid people, who are ignorant of what it is all about. In the meantime, the door to Nanking will remain wide open and through it will flow the giant bombing planes, the high explosives, the tanks, tractors, motor vehicles and all the other modern slaughter-house utensils manufactured in Europe and America to impose respect for authority. *They are coming up to kill us, to drop bombs and tear us to pieces*, cried one old Northern Chinese friend as he confided to me his fears of what Nanking was preparing to do in 1930 to force them to accept its rule. And that is what the present policy of the Powers towards China as expressed in the Nine Power Treaty means : "SUBMIT OR BE KILLED ! " And in support of this policy, the Powers legalize their sales of abattoir-equipment to Chiang Kai-shek, while placing an embargo on shipments to the independent provinces who desire to defend themselves. How long is this to continue, sanctified by two perpetual Treaties which legalize the slaughter ? Chiang Kai-shek may be a wonderful personage, worthy of all respect and support, but we incline to the belief that the Great God who made us, never intended that one man should rule over 500,000,000 people. And, if the events of the past several years are any criterion, it should be more than clear that these 500,000,000 people will never submit to such one-man despotism. My interest and concern in China is with these 500,000,000, and I hold firmly and unswervingly to the belief and creed that they are entitled to the same consideration that we of the West exact from our rulers.

Unification ? Yes. If it can be brought about humanely and in conformity with civilized ideas and methods. But until there is some legal way of ascertaining the will and wishes of these 500,000,000, as to whether or not and how they desire to be unified, it is a crime against God, against Nature, against Humanity and against Civilization, to assume that because they are all of one color and race, they must perforce belong to one nation. The reasons behind the American Civil war for the preservation of the Union, do not apply to China. Similar reasons advanced by European states and Empires are also inapplicable.

Railways, the Only Unifier

We cannot proceed along these lines and retain our self-respect. Granted that China should be unified, we are going the wrong way about it. If these 500,000,000 people must come together to satisfy our selfish utilitarian idea of what must be in the Orient, if Japan concurs in that idea, then the time has arrived when some new program and policy should be adopted. If the United States and Great Britain are keenly intent upon the development of the Chinese market and in holding this country intact as a sovereign and independent state to insure the open door and the balance of power, and Japan is also willing to shape her diplomacy and future policy along the same lines, there ought to be some way of formulating a program that will stand some chance of being applied.

If Chinese unity and strength is to be the goal, it can only be reached through the construction of about 10,000 miles of railways over a period of ten years, calling for loans aggregating $500,000,000 or $50,000,000 a year. But with China in such a hopeless state of disunion, of anarchy and of chaos, with no assets, no security, with the country overrun with armies, bandits and communists, loans are out of the question, unless there is some guarantee that these armies will be disbanded, and that the funds so raised will be honestly expended and the railways properly built and managed so as to fulfil their mission of stabilization and repay the bondholders.

Who Will Guarantee the Loans ?

Who can furnish these guarantees ? China is in no position to do it. The Foreign Powers will never go further than using their war-ships to protect their loans secured on the Customs revenues. What then is the solution ? Would it not be better to take Japan at her word and urge China to compound her differences with that country, accept her guidance and tutelage and work with her for the suppression of bandits and communists and the unification of the country ?

The only acceptable guarantee for a railway loan to China would be the guarantee of Japan, as the partner of Great Britain and the United States in placing China on her feet. Only through such co-operation and full trust in the honor of Japan can China be assisted towards unification. The surest guarantee that China's sovereignty and independence will be respected, is by accepting Japan as a partner in the huge task of pacifying and unifying the country and relying upon the Japanese army to guarantee that internal stability essential to success.

Railways or Bombs

However, all this assumes that the peoples and races of China are anxious and willing to be unified through outside assistance. Now that it has learned and become adept in the modern art of baby-killing, with complete safety and honor to itself, Nanking will probably reject any such proposal. As long as Nanking can purchase bombing planes, build its military highways with forced labor and dot the countryside with concrete pill-boxes and blockhouses to hold the conquered provinces in subjection, it is extremely unlikely that it will grow enthusiastic over any program for unification and rehabilitation by foreign loans participated in and guaranteed by Japan. The Chinese are not so keen about being unified under Chiang Kai-shek, or they would have come together long ago. They rather prefer the present loose system with one recognized faction standing between them and foreign intervention, while they settle their differences between themselves in the time-honored Chinese way.

So, it is one thing or the other. If the Nations of the West are merely interested in the political future of China, directing their diplomacy towards the erection of a strong, central government that will establish and maintain a balance of power, it is better to leave them alone and permit them to work out their own salvation, no matter at what cost to Humanity. We can then proceed as we have been doing, selling them bombing planes and other instruments of slaughter.

If, on the other hand, we are sincere, and interested in real trade, development of the resources of China, opening of mines and creation of industries that will convert the profits from the Open Door into good, clean, honorable money, we will have to build RAILWAYS. China lies prostrate, bankrupt in government and finances, her people starving, miserable, desperate and in despair, the prey of militarists, bandits, pirates and communists, simply because this vast continent lacks the elaborate modern machinery and means of transportation that alone will enable the people to support themselves and enable central government to impose its rule.

The United States, Great Britain and Japan must sooner or later stop their squabbling and come to some understanding as to whether the future of China is to be resolved through AEROPLANES OR RAILWAYS, whether unification, peace, happiness and the prosperity of one quarter of the world's population is to be erected on a foundation of conquest and carnage or evolved through the more humane and civilized process of binding them together by railways.

Will Common Sense Prevail?

All this talk emanating from Geneva to the effect that the application of sanctions in the case of Italy, is only the curtain raiser, the first trial test of the machinery, preparatory to the greater test in the Far East, and the advice that flows so glibly from Americans urging China to "hold the fort, that we are coming," while voting billions for navies, armies, and fleets of non-stop Trans-Pacific bombing planes, is sheer madness. There are ways to solve this problem amicably and with profit to all concerned. It is not our purpose to outline in detail a plan that might be followed.

For many years, plans for the salvation of China were the exclusive monopoly of American uplifters, educators and financiers operating as instruments of the State Department. They accomplished absolutely nothing. Just now the Japanese feel that they are inspired by Heaven to take over the job, but the beneficiaries suspect ulterior motives and are extremely loath to commit themselves to any program conceived by Tokyo. Any plan for saving China involves millions in hard cash, and Japan with all her good intentions, has not sufficient funds to spare for any large-scale developments, such as the building of a national railway system. The salvation of China can be brought about only by sincere cordial co-operation of the three great naval Powers and with full trust and confidence in the honor of Japan to scrupulously respect the integrity of China while assuming the major burden of guaranteeing and protecting the interests of the other Powers. There may be some other way, such as the one suggested by Geneva, which means sanctions, war and killing our best customer in Asia, but I refuse to believe that the people of the United States will ever endorse such folly.

THE PORT OF COLOMBO

THE first step in the provision of further Port facilities in Colombo was taken in August when the Minister of Communications and Works, the Hon. Mr. H. M. Makan Markar, cut the first sod in connection with the excavation of the inner dock. The preliminary excavation work will provide employment for a large number of Colombo's unemployed for whom it was at present virtually impossible to find suitable work elsewhere in Colombo. The excavation of this inner dock is the first work of any considerable magnitude since 1922, in which year the late development scheme was completed. The necessity for this dock has become more and more pressing in recent years. At the present moment whenever the smaller craft which make use of this port undergo their periodical extensive refittings, the main dock has to be locked up and larger vessels in need of accommodation therein have to be turned away, with the consequent loss of revenue and employment in the port, and considerable inconvenience to the vessels which require the non-existent facilities. Congestion has become so considerable that the refitting and docking of Naval or departmental craft has only been possible by the closest co-operation of the departments concerned and even then delays and inconveniences have been frequent. The provision of this inner dock will mean that extensive repairs can be carried out to the smaller vessels without facilities having to be refused to larger and more important vessels which may be in urgent need thereof. The necessity for this extra accommodation has long been realized but the financial situation has precluded its advancement.

At first sight, this new scheme would appear open to objection that it constitutes a dock within a dock and that the inner dock could not be occupied or vacated while the outer one was in occupation. To this the answer is, that it is admitted that the scheme is not perfect, but that it is the best possible in existing circumstances. In the first place such other sites as would appear to be available must necessarily be reserved for future important developments, such as the Oil Dock and the Deep Water Quay which was totally unconnected with and by no means a necessary corollary of the scheme which has been inaugurated. Another important reason is that of economy. It is obviously advantageous to make use of land unlikely ever to be required for other purposes and at the same time to utilize the existing Pumping Station, Guide Pier, Dolphin and Caisson, which, of course, could not have been done had the new dock been situated at some distance from the present Graving Dock. The apparent disadvantage of prospective entrants to this dock being obliged to approach it through the old dock can by exercise of systematic planning be wholly or at least mainly avoided. It can, for instance, be arranged to dock smaller vessels which require extensive routine repairs at a date determined well beforehand when the occupation of the existing Graving Dock by larger vessels will cause no inconvenience. Its existence will preclude emergency repairs to large vessels having to be attended to at other ports because the only dock is occupied by some Port Commission vessel which is not in a state to be floated out at a few hours' notice.

The dock will be 300 feet long by 54 feet wide and will have a depth of 20 feet at sill. The cost is estimated to be under eight lakhs of rupees and the time for construction approximately two and half years. It is hoped that it will be possible to interest His Majesty's Navy in the construction of this dock to such an extent that they will be willing to contribute their moiety of the cost on the understanding that they will be entitled to the same preferential treatment when it is required for their use as they enjoy at present in the use of the present dock to which they contributed. When this work is completed (and other facilities like the Wet Dock Quay and Oil Basin are also to be afforded to ships calling here) there will then be no serious rivalry and the Port of Colombo will be second to none in the whole world. Plans for these two major assets to the Port have already been prepared and the Port of Colombo which is the Island's best asset will soon be also one of its proudest possessions. Of the 66 million rupees already spent on the Port, 61 millions have been recouped from revenue. That is the splendid record of the efficient manner in which the Colombo Port Commission has conducted their work. They are in debt to the Central Government now only to the extent of five million rupees.—*The Dock and Harbor Authority.*

British Locomotives for Chinese Railways

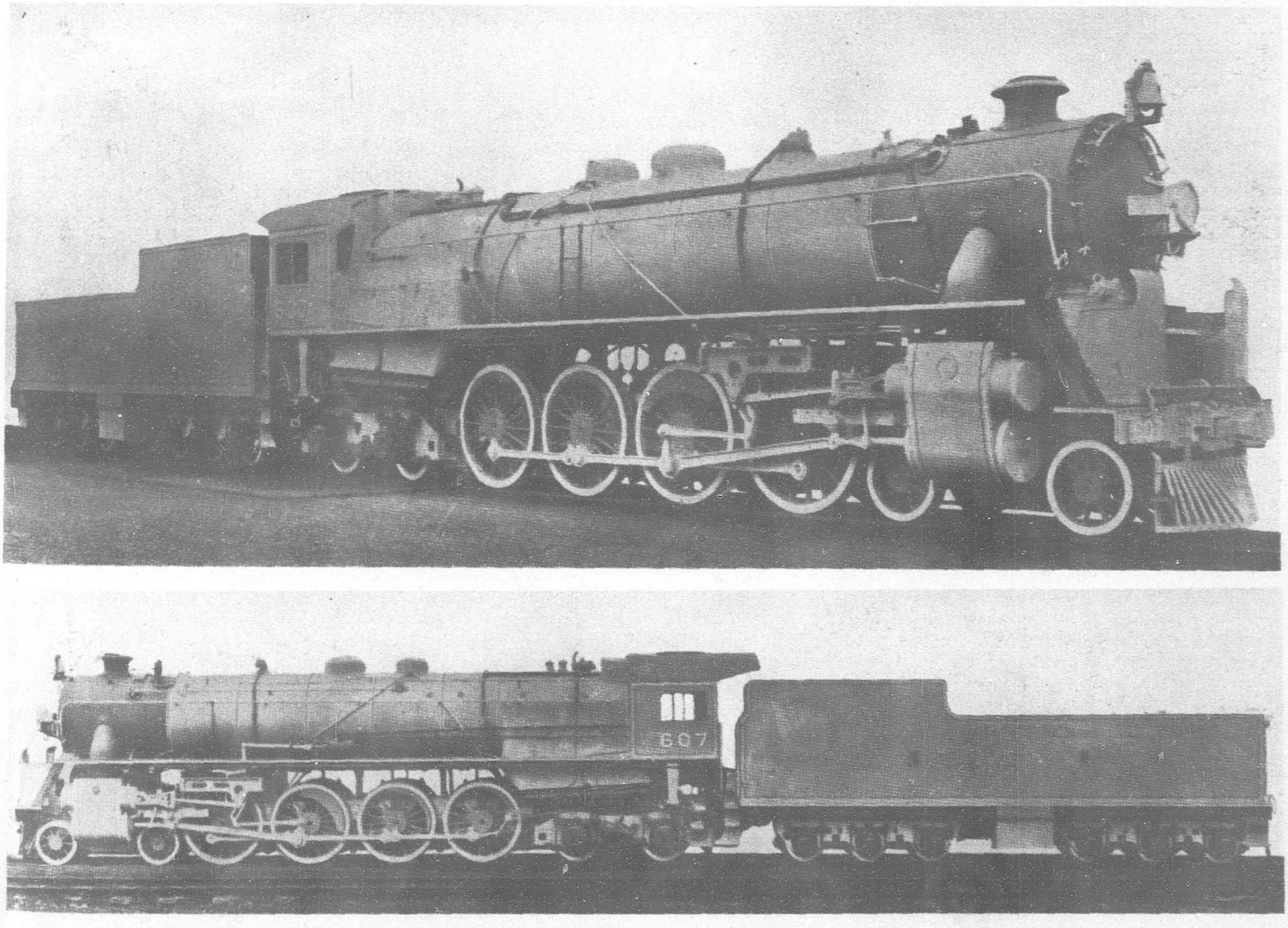
Consignment of Six with Tenders and Five Railway Coaches, all Fully Assembled, are Brought to Shanghai Aboard Motor Vessel *Belpamela*

Perhaps the most remarkable cargo ever brought to Shanghai in any ship was a whole fleet of huge British locomotives and their tenders and five railway coaches which were transported from England to China in the Motor Vessel *Belpamela* and landed in the second week in February at the Woosung dock of the Shanghai-Nanking Railway. In all, six great 4-8-4 Vulcan locomotives, each weighing 106 tons, and their tenders, each weighing 40 tons, with the five railway coaches comprised the unusual cargo of the ship. The six big locomotives, destined ultimately for service on the Canton-Hankow railway, the last section of which now is rapidly nearing completion, are part of an order for twenty-four British locomotives purchased by the Chinese Government through the British Boxer Indemnity Fund. The delivery of the locomotives in Shanghai was made through Messrs. Malcolm & Co., Ltd. These are the largest locomotives ever imported to China.

The grey-painted Motor Vessel *Belpamela* is a craft of unusual lines and is one of a group of Norwegian vessels called " Bell boats" specially constructed for transporting abnormal weights by the Norwegian firm of Christen Smith, represented in Shanghai by Messrs. Wallem & Co. The single funnel of the vessel is at the stern and from three heavy steel masts powerful cranes are operated in the shifting of heavy cargo. A special crane adjusted to the length of the locomotives, is a huge mechanism designed for this particular duty and entirely different from ordinary cargo handling equipment.

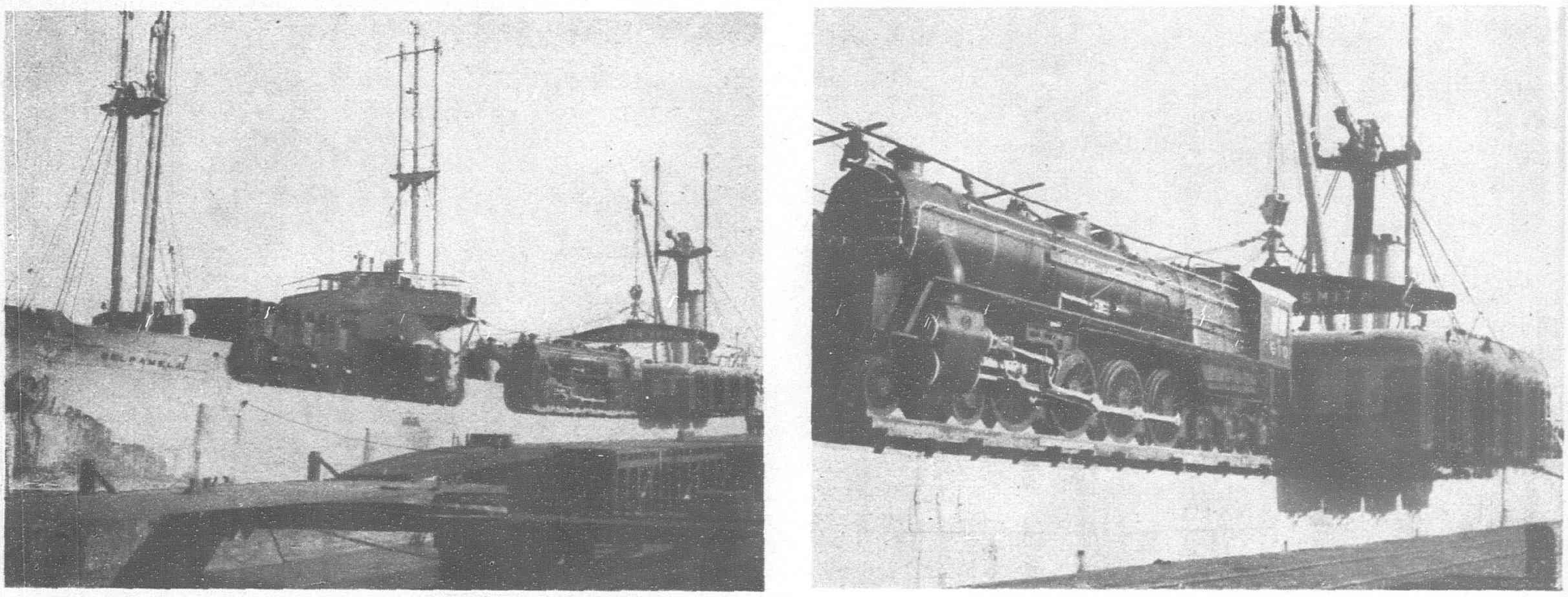
As shown in an accompanying illustration the six locomotives were carried on deck and while they were exposed to the weather through the long voyage from England no signs of deterioration were to be found when the locomotives were inspected on their arrival in Shanghai. Extra coats of paint and heavy greasing kept them free from corrosive damage. Five of the six locomotives were moored firmly side by side across the center of the ship, and the sixth, its front touching one side of the vessel and its back the other, was placed behind the first five.

All of the twenty-four locomotives that the Chinese Government has ordered are the product of the Vulcan Foundry, Ltd., Newton-le-Willows, in Lancashire, represented in Shanghai by Messrs. Malcolm and Company. The six locomotives brought to Shanghai in February form the second consignment to arrive in China. The first was sent to Canton, but these arrived dismantled and now are in process of being assembled. Another consignment of six locomotives of the same type will be leaving England in March and these will be taken to Tsingtao. A final consignment of eight locomotives will be shipped later in the year, probably when the Canton-Hankow Railway through line is completed. The locomotives which were brought to Shanghai are on loan temporarily to the Shanghai-Nanking Railway. The purpose of sending one

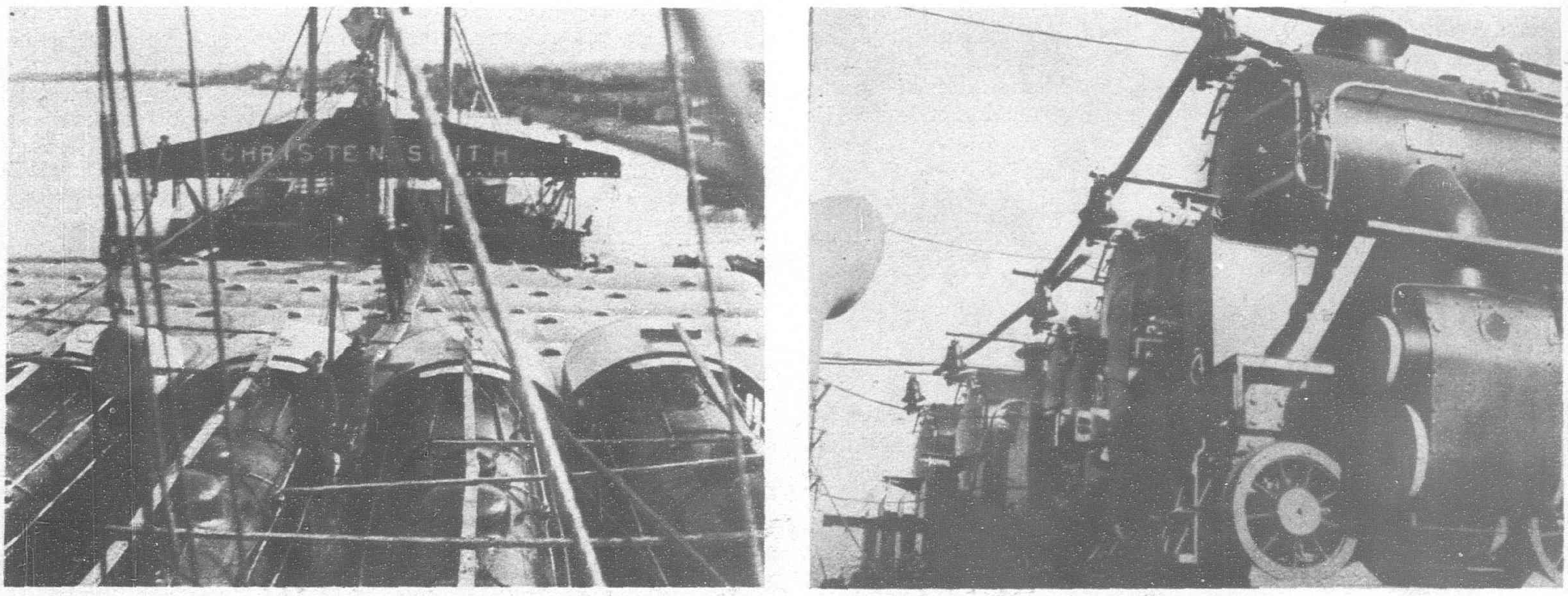


The new 4-8-4 type mixed traffic locomotives built by the Vulcan Foundry Limited for the Chinese National Railways, showing fittings on both sides

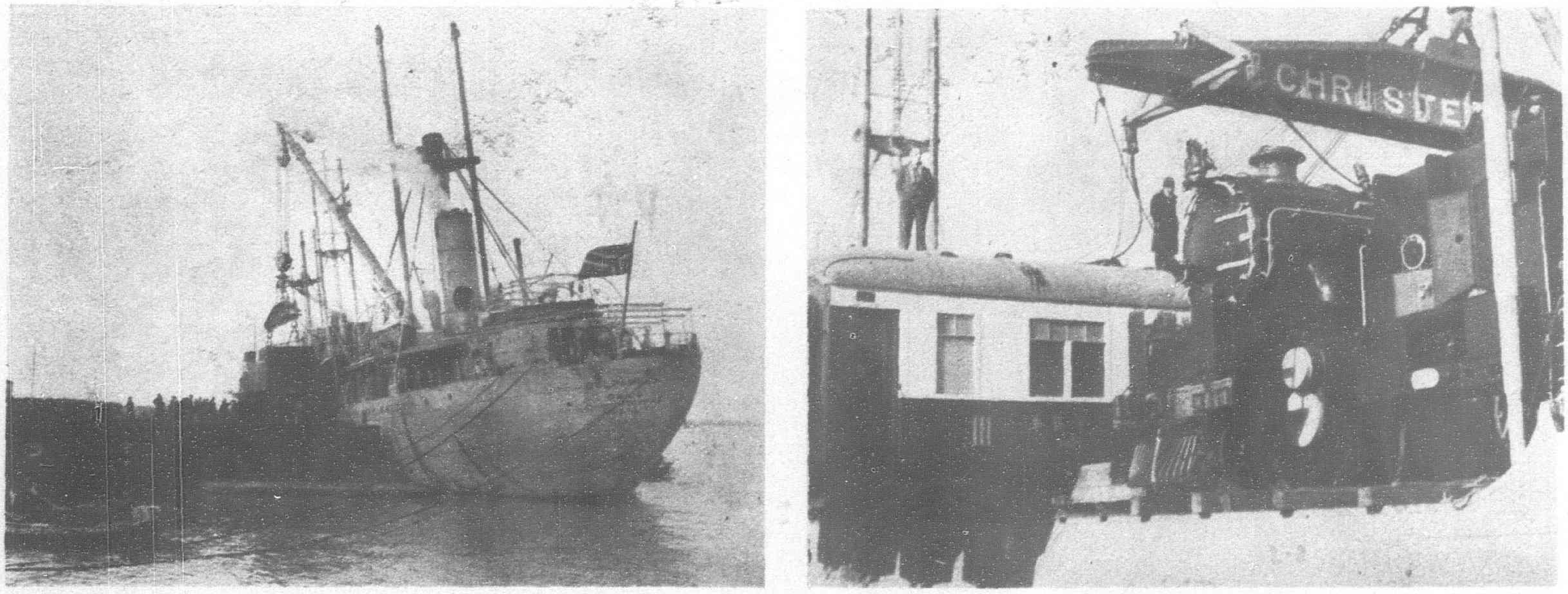
THE UNLOADING OF AN UNUSUAL SHIP'S CARGO



The two pictures above show the motor vessel "Belpamela" as she appeared at the Shanghai-Nanking Railway dock at Woosung on arrival from England with a cargo consisting of six huge locomotives and tenders and five railway coaches, all assembled for delivery to the Chinese National Railways



These two pictures show how the unusual cargo of locomotives and railway equipment was stowed on the deck of the motor vessel "Belpamela" for the long voyage from England to Shanghai

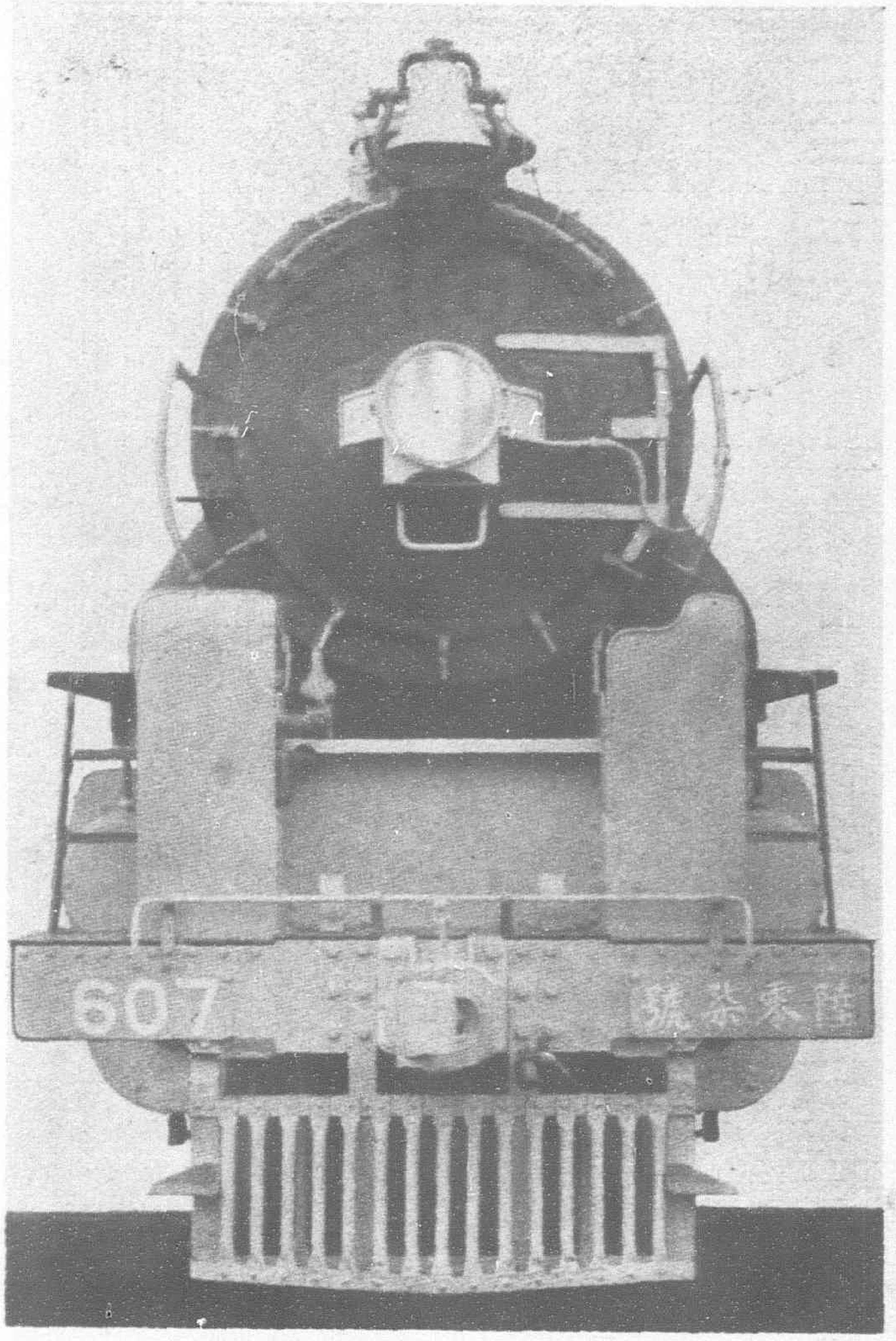


Photos by Courtesy of the North-China Daily News

These two bottommost pictures, showing the unloading of locomotives and railway equipment from the motor vessel "Belpamela" at the Shanghai-Nanking Railway dock in Woosung

consignment of locomotives to Canton and other consignments to northern ports is that the engines may be used to operate the northern and southern sections of the Canton-Hankow line which already are in operation. The six locomotives destined for Tsingtao ultimately must be taken across the Yangtze, probably by the Nanking-Pukow railway ferry connecting with the Shanghai-Nanking railway line.

The unloading of the railway equipment was an unusual spectacle which attracted and held the interest of a great gathering of onlookers brought to the wharf when the *Belpamela* first appeared carrying huge parts of railway equipment, coaches and tenders, that overflowed from her deck and were slung protruding far over the sides of the vessel. The railway coaches were first picked up neatly by the huge crane and set down on the rails on the pier and then the six big locomotives and their tenders were shifted, with the heavy steel hawsers first slowly taking up the slack and then with the lifting force gradually applied, inch by inch, carrying the great metal mass of 106 tons high into the air and then overside to be lowered with slow care as the ship listed more and more to port and lines of coolies held fast to guide lines, preventing any tendency of the big burden to rotate or strike against obstructions. One piece of equipment after the other were lowered delicately to the rails on the pier to be towed away by a puffing, venerable but still efficient tank locomotive that has been in service in China for more than a quarter of a century. The six new locomotives and the other equipment for the time being will go into service between Shanghai and Nanking. The erection of the engines at the works of the Vulcan Foundry is being done under inspection of Messrs. Sandberg, Consulting and Inspecting Engineers, London.

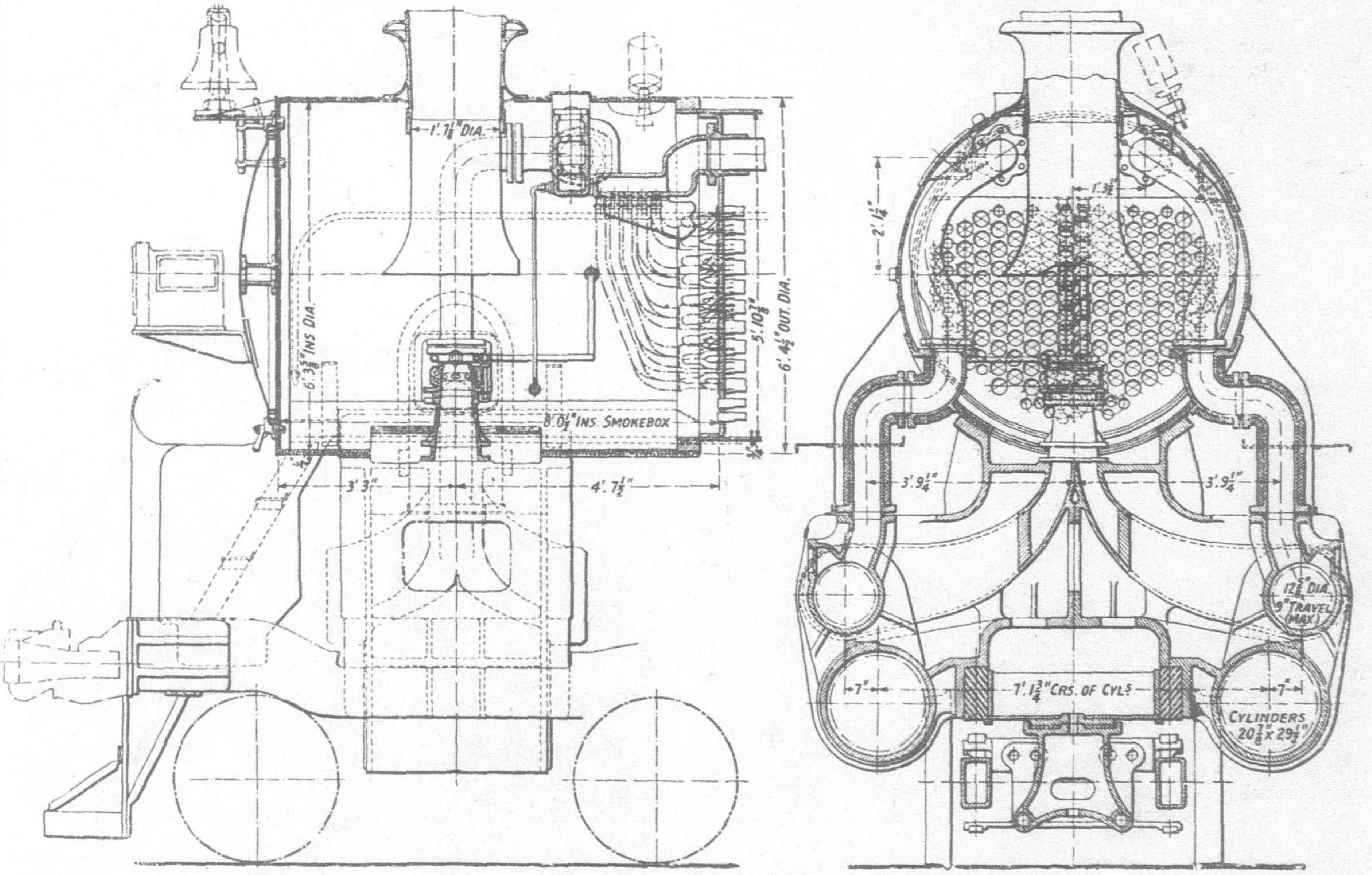


Front end view of the locomotive

Highest Class Workmanship

Regarding the building of the locomotives, a British engineering writer who was enabled to visit the plant of the Vulcan Foundry Limited and inspect locomotives already completed and others in various stages of assembly in the works emphasizes in an article published from *The Railway Gazette* that the workmanship throughout is of the highest class, and that although these are not actually the heaviest locomotives yet constructed by the Vulcan Foundry Limited, they rank as the largest in overall dimensions, and are within a ton or so of the highest weight standard previously reached.

They are remarkable engines in respect of size, and their design



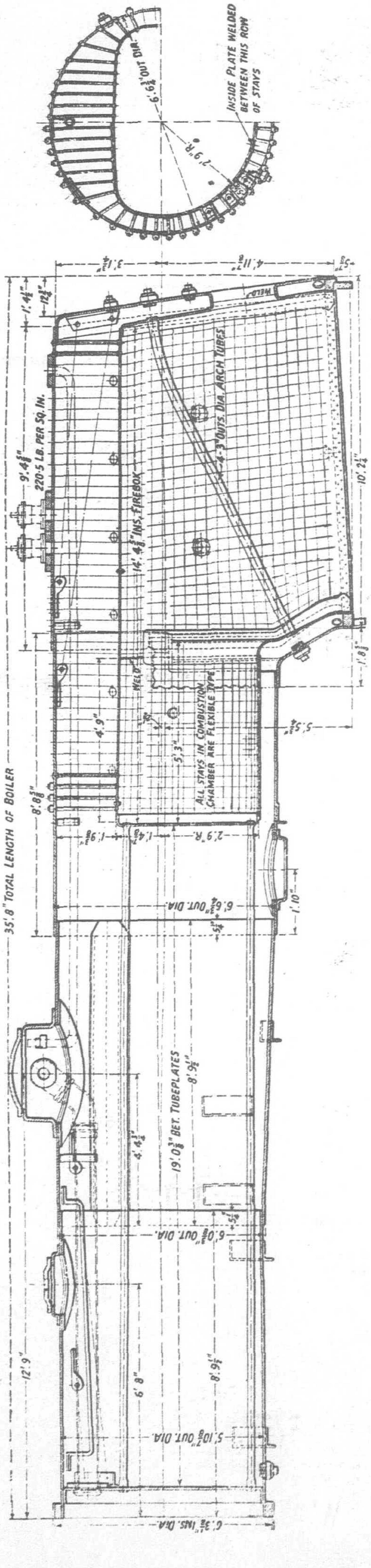
Smokebox and Superheater

incorporates several interesting features, drawings of some of which will be found accompanying this. Certain of these features have been largely influenced by the size and weight of the locomotives. The last six of the first consignment of sixteen are equipped with booster engines driving the rear axles of the leading tender bogie. Outside coupling rods with balanced cranks connect these axles with the intermediate axles. In the remaining engines, the rear bogie of the locomotive itself is adapted for the ready application of a booster if required.

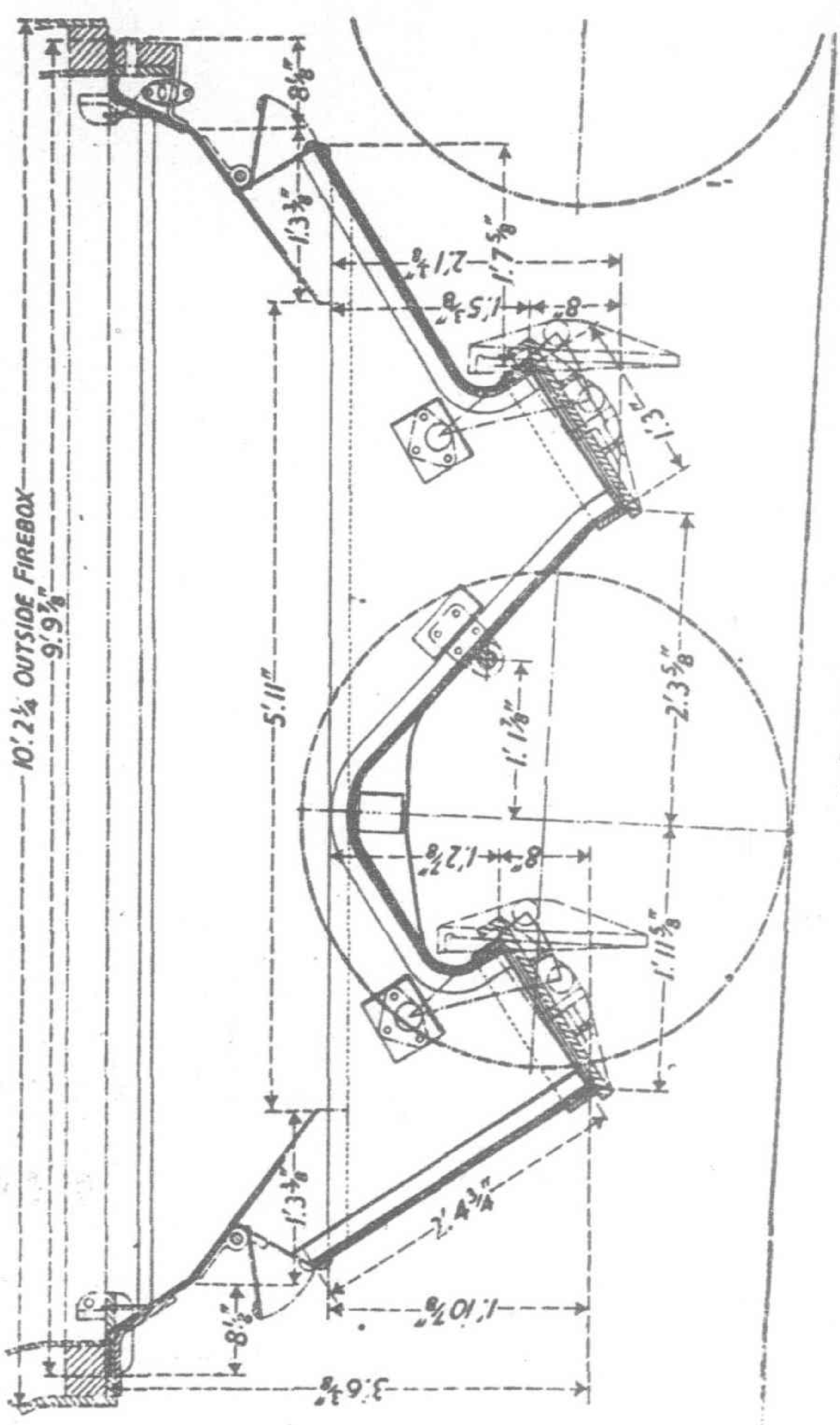
The engines are built to negotiate curves of 150-m. radius and are suitable for maximum grades of 1.5 per cent. Six of the engines fitted with boosters are to run over the northern section of the Canton-Hankow railway, and four over the southern section of the same railway. The remaining six of the first order will be loaned for service on the Nanking-Shanghai railway.

Boiler Details

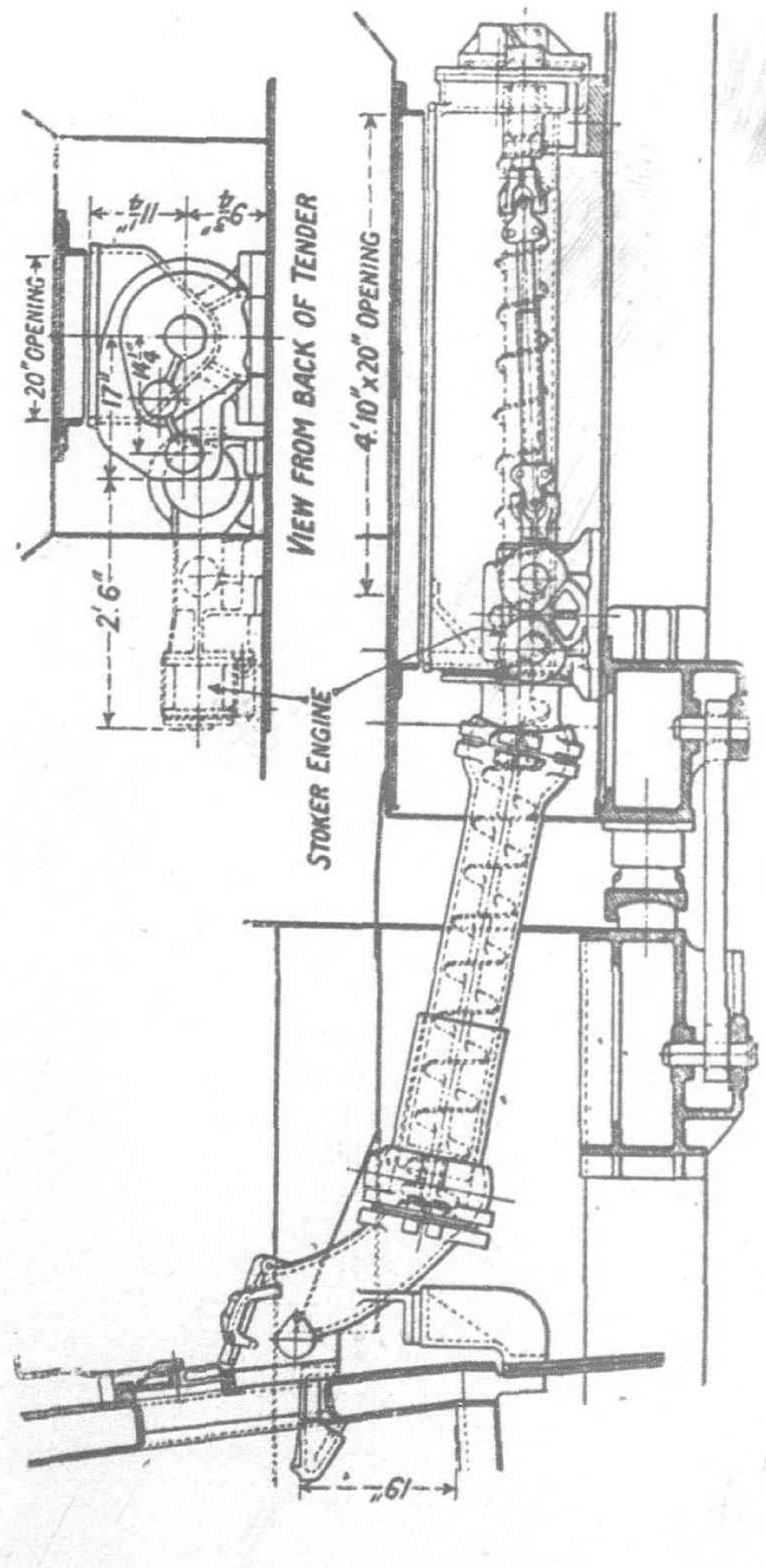
In the design of the boilers for these engines, the main characteristic apart from their large proportions, is the provision necessary for burning a low grade of coal. The firebox, with which is incorporated a combustion chamber, is noteworthy for its ample size, a remark which applies with equal force to the grate, built in four sections, whilst the ash-pan is provided with ash-discharging doors, controlled from a hand-operated lever on the outside. The inside firebox is of steel, and so designed that Thermic syphons can be fitted if required. The firebox water space stays are of the flexible type in the breaking zone and around the combustion chamber, details of which are reproduced in the drawings. The roof stays are direct, with the exception of the front three rows which are of the flexible type. The boiler barrel is tapered, and a steam stop valve, fitted with external operating mechanism, is provided in the dome. A Tangential steam drier is also located in the dome.


6'6½" OUT DIA.
INSIDE PLATE WELDED BETWEEN THIS ROW OF STAYS
WELD
220·5 LB. PER SQ. IN.
14'4¾" INS. FIREBOX
4-3" OUTS. DIA. ARCH TUBES
ALL STAYS IN COMBUSTION CHAMBER ARE FLEXIBLE TYPE
35'8" TOTAL LENGTH OF BOILER
6'6⅝" OUT. DIA.
19'0¾" BET. TUBEPLATES
6'0⅜" OUT. DIA.
5'10⅝" OUT. DIA.
6'3½" INS. DIA.

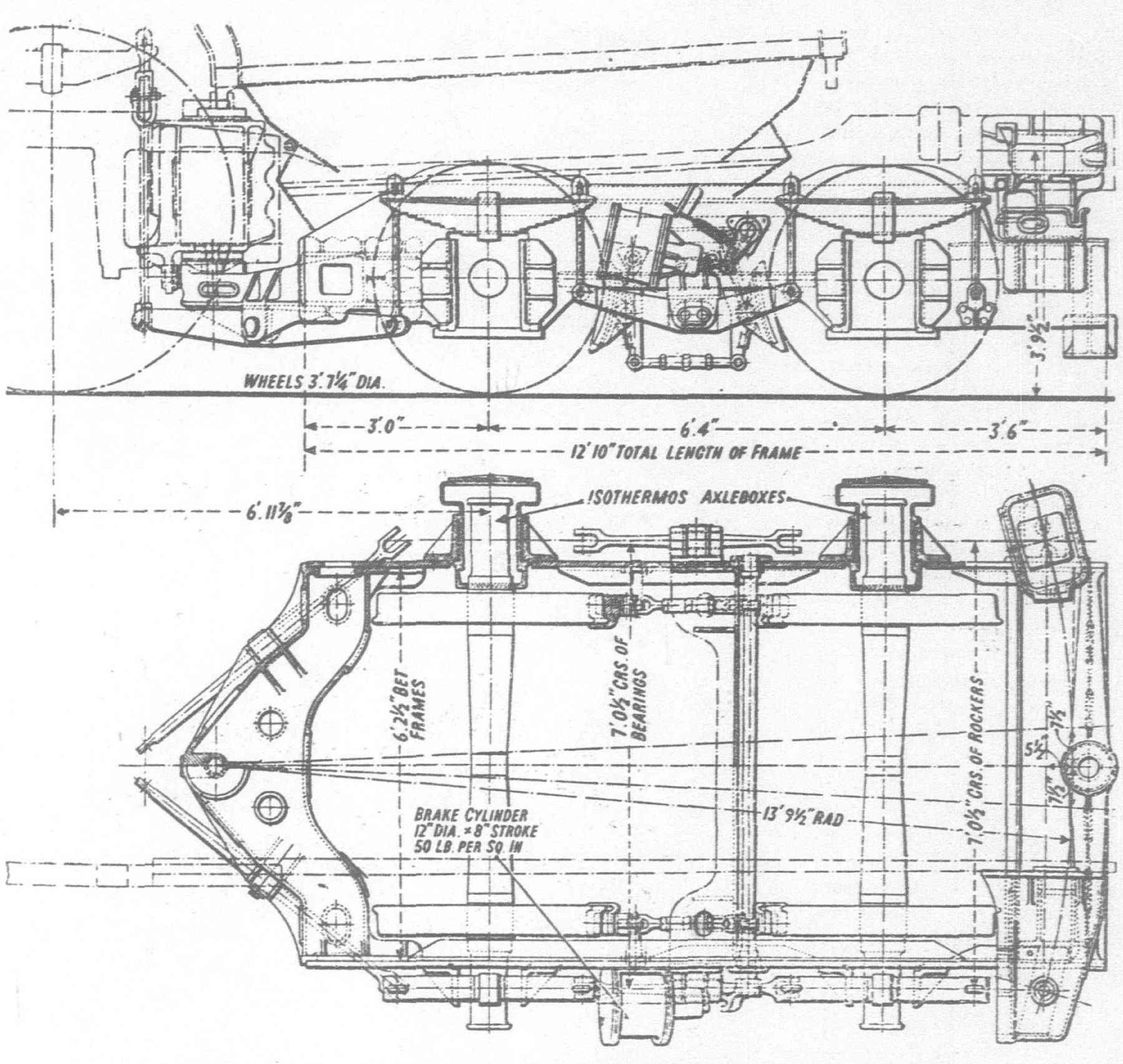
Details of Boiler and Firebox



Ash-pan



Mechanical Stoker



Trailing (engine) bogie showing three-point method of transferring load

Coal is fed into the firebox by a mechanical stoker of the B.K. type manufactured by the Vulcan Foundry Limited, by arrangement with the Standard Stoker Company. The driving engine for the stoker is accommodated on the tender. A firedoor of the sliding type operated by hand is also provided.

The arrangement of the superheater, which is of the MeLeSco "E" type with multiple valve regulator header, is somewhat unusual. There are 120 flue tubes, 3½-in. outside diameter by 10 w.g., and the superheater is comprised of 33 elements made from tubing 1$\frac{3}{16}$-in. outside diameter by 10 w.g., each element occupying four flues, with the exception of six which occupy only two flues. The elements have bends at the smokebox end protected from cinder cutting by a fitment of special shields round the bends. The large flue tube area naturally means that the number of small tubes is greatly reduced, there being only 50 of these, dispersed as shown on one of the accompanying drawings. The heating surface of the superheater is 1,076 sq. ft., and the total combined heating surface of the boiler and firebox is 4,064 sq. ft. The boiler, firebox, and cylinders are covered with Alfol lagging.

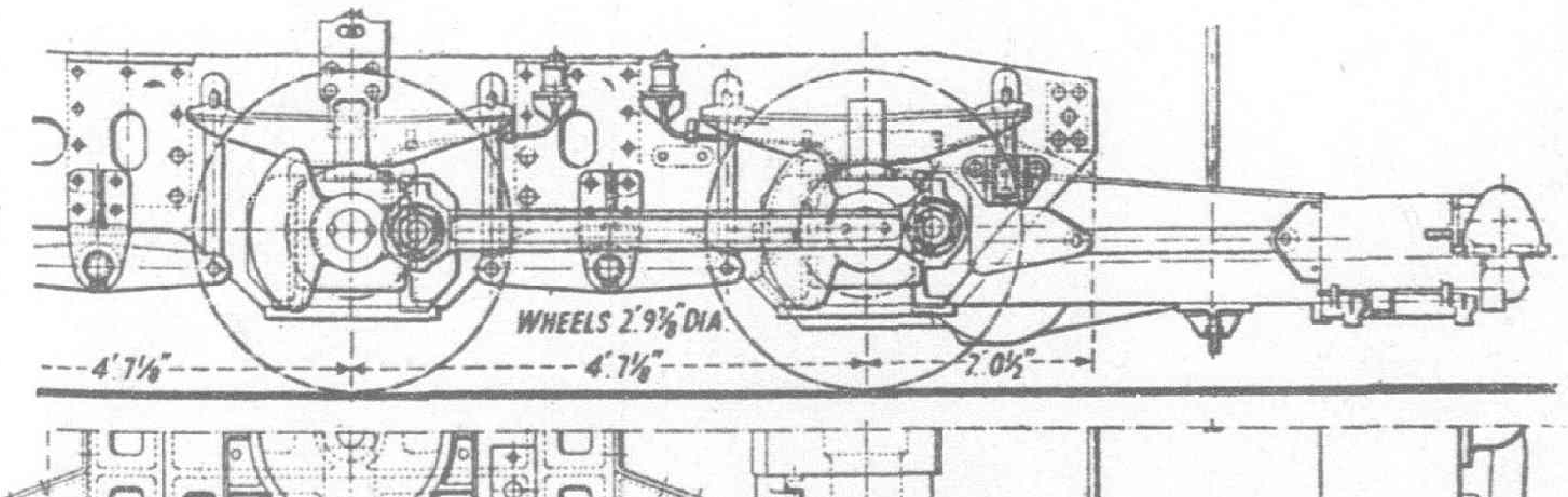
The steam stand for the distribution of steam to the various fittings is in two sections, *i.e.*, one for saturated and the other for superheated steam, the latter being used for the mechanical stoker, Westinghouse air compressor, electric lighting turbo-generator, booster, and whistle. The whistle is of the chime pattern with five separate notes blending together and providing a melodious and at the same time penetrating sound. The boiler feed arrangements comprise two Gresham and Craven No. 10 injectors, supplying water to the boiler barrel through a top feed clackbox. The more important boiler fittings comprise pop safety valves, Everlasting blow-off cock, two Clyde soot blowers mounted on the sides of the firebox, Housley type arch tube and washout plugs, bell with pneumatic ringer, Sydney Smith's cut-off control gauge, and Gresham and Craven Vapor heating equipment.

The smokebox contains a system of deflector plates and wire netting forming a spark arrester and self cleaning arrangements, in accordance with the recommended practice of the Master Mechanics Association.

Cab and Footplate

The accompanying illustrations show the general lines of the cab and the footplate arrangements as a whole. Comfortable seats are provided for the driver and fireman, and we can testify to the excellent lookout afforded to both of them. One of the most interesting features is the cut-off control gauge referred to above. The use of this dispenses altogether with guesswork on the part of the driver, as the gauge enables him to adjust the cut-off correctly for the most economical and efficient working of the engine. The gauge shows the pressure in the steamchest when steam is on, and when the engine is drifting, also the exhaust pressure; the existence of a leaky regulator valve or a creeping reversing gear is also detected.

The working of the gauge is as follows: A duplex movement is provided, wherein two quadrants and pinions with their respective black and red hands are both operated by the Bourdon tube connected to the steamchest. Thus, as pressure is applied to this tube, both hands move together over the gauge dial and indicate the applied pressure. The movement frame associated with the red hand is pivoted and coupled to a second Bourdon tube, connected to the exhaust


WHEELS 2'.9⅞" DIA.
4'.7⅛"
4'.7⅛"
2'.0½"
6'.6"
CRANKS AT 90°
R.H. CRANK TO LEAD
CYL'S 7" DIA. 10" STROKE. CUT-OFF 75%
GEAR RATIO 3:1 AXLE GEAR 18" P.C.D.
36 TEETH. IDLER GEAR 8½" P.C.D. 17 TEETH
CRANKSHAFT GEAR 6" P.C.D. 12 TEETH
DRAWBAR PULL OF BOOSTER 3480 KG.
FACTOR OF ADHESION 7·5

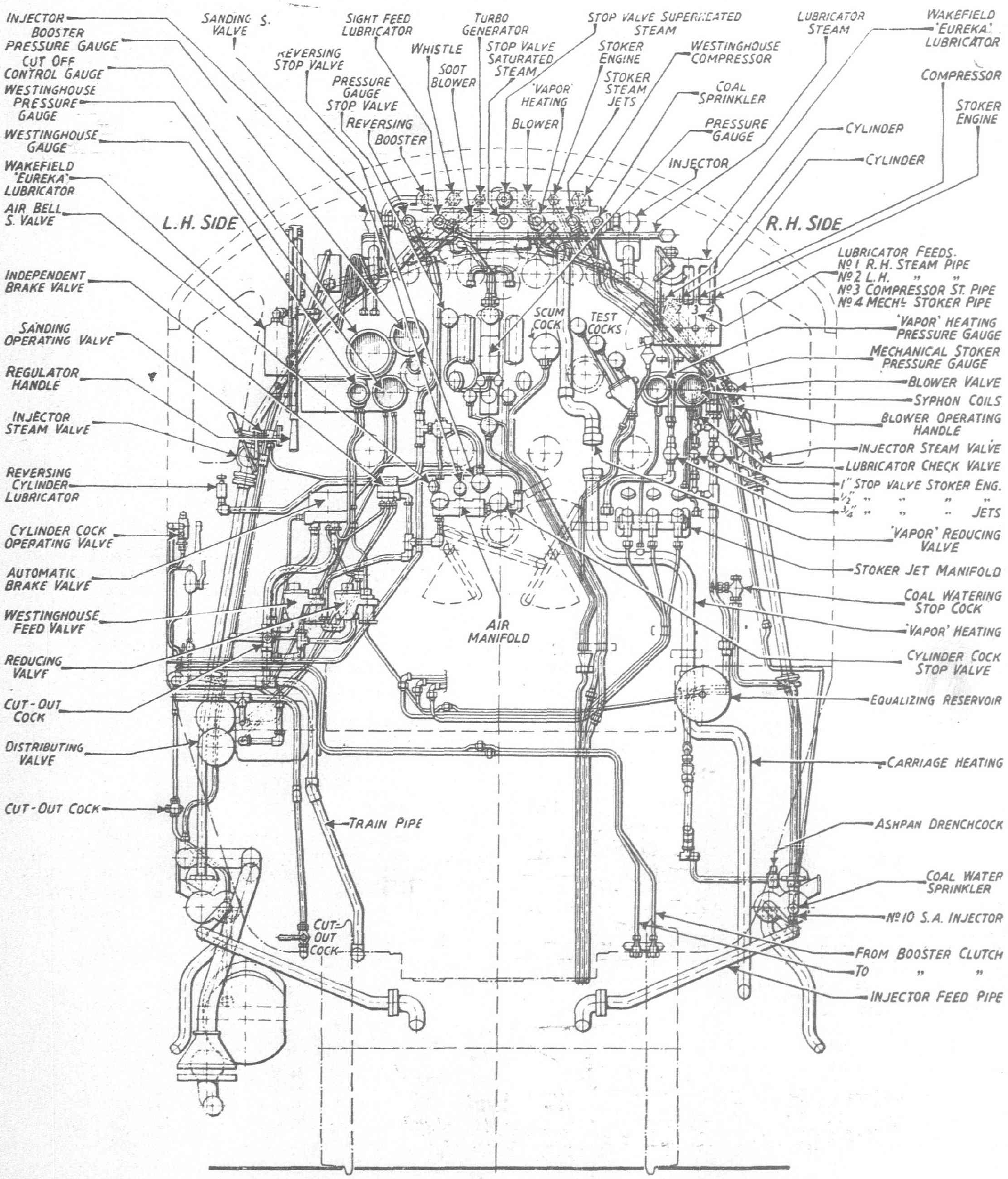
Booster driving arrangement on tender

pipe, in such a manner that, as pressure is applied to this tube, the movement frame swings so that the red hand moves in the opposite direction to that due to increasing pressure in the steam pipe. Consequently, a differential action is set up, and the magnitude of the exhaust pressure is shown by the degree of rotation of the pivoted frame, or the amount of movement of the red hand away from the black hand. The construction of the gauge incorporates the necessary syphons for both the steam and exhaust pipes. Operations such as reversing, manipulation of the cylinder cocks, etc., are performed by the aid of compressed air.

The cab and footplate are electrically lighted, and lights are also provided for the inspection of the water and other gauges at close quarters; the equipment for this purpose was supplied by J. Stone & Co., Ltd. The large number of controls will be noted from the illustrations, but, as found during inspection, those most frequently required have been in all cases located so as to be easily within reach both on the driver's and fireman's side. The window spacing and ventilating arrangements are both excellently planned, and the cab, besides being capacious, affords what one should consider to be the maximum of comfort and convenience for the enginemen, the whole of the footplate being practically enclosed by means of a plate at the rear which protects them from draughts.

Main Frames, Cylinders and Motion

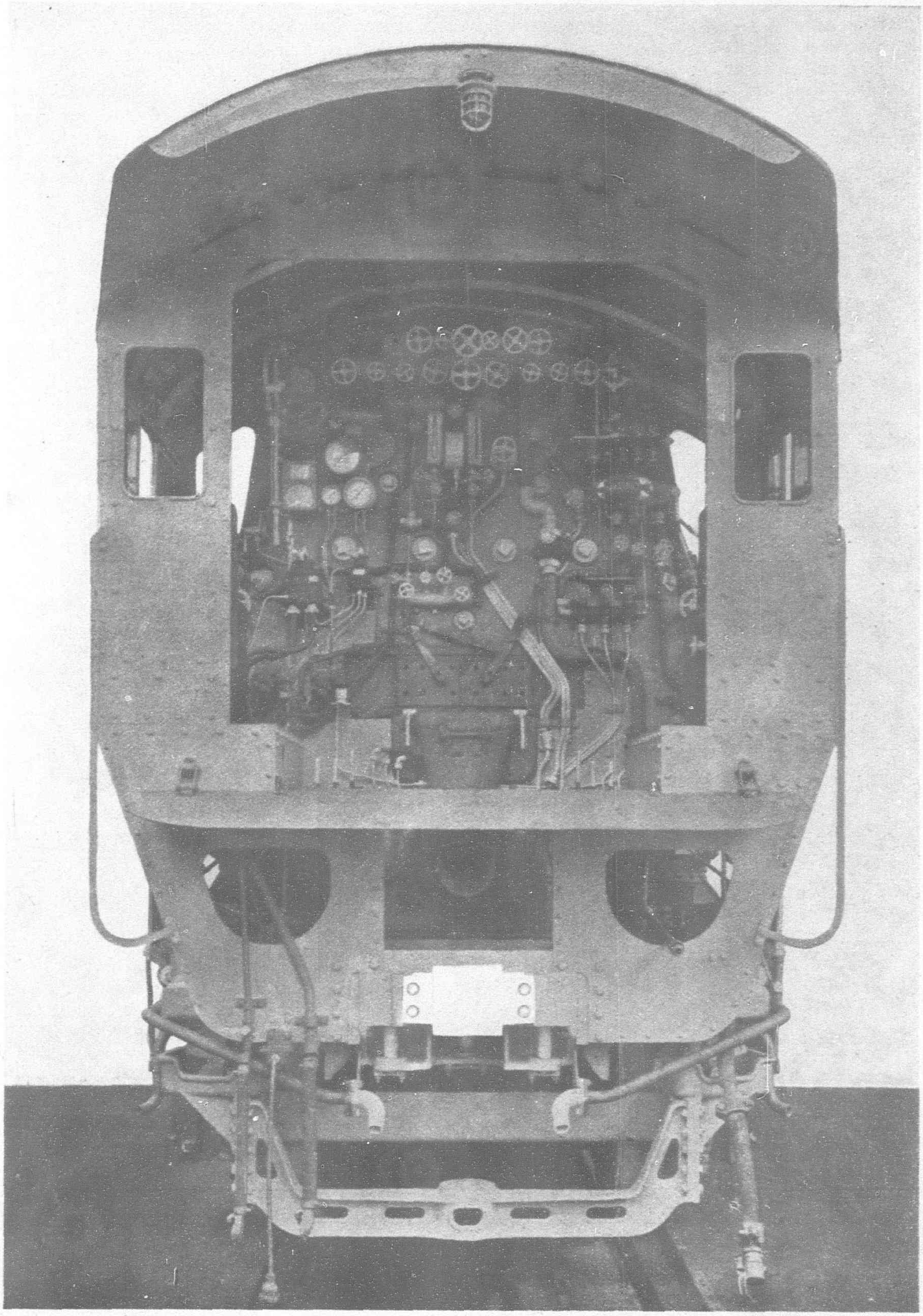
The main frames are of the bar type cut from rolled steel slabs, with a slab extension over the engine trailing bogie. A superstruc-



Outline drawing of footplate keyed to show the positions of controls, gauges, etc.

ture built up of welded plates and cross stretchers is carried by the bar frames for the support of the boiler barrel and smokebox, running boards, etc. The front bogie is of the built-up type with swing link control, and is fitted with oil lubricated axleboxes. The hind bogie is provided with plate frames and outside axleboxes of the Isothermos type. A three-point suspension system is provided for the engine by compensating the spring gear in two groups, the leading bogie forming one group and the coupled wheels and trailing bogie the second group. The load from the main frames is conveyed to the trailing bogie at three points, one at the forward and two at the rear as shown on one of the accompanying drawings. The load is applied at the rear end through rockers, the function of which is to stabilize the hind end and make the bogie self centring, without the use of spring centring devices.

The cylinders drive the second pair of coupled wheels, and steam distribution is effected by Walschaerts gearing with piston valve steamchests above the cylinders. Each cylinder and steamchest is cast in one with half of the smokebox saddle, the two sections being bolted together at the center. The cylinder barrels and piston valve liners are of nickel cast iron. A noteworthy feature in this part of the construction is found in the somewhat exceptional size of the piston valves, namely 12⅝-in. diameter, whilst the valve rod of the Walschaerts gear is fitted with a two-to-one extension to provide for a piston valve travel of 9-in. The cross-heads are of the multiple-bearing type lined with white metal on the bearing surfaces, the object of the design being to provide as large a bearing surface as possible without undue length of cross-head. Inspection of the motion parts is facilitated by the provision of electric lighting permanently fitted under the running board. The lights can be switched on or off as desired for use after dark.



General view of cab interior of the new 4-8-4 type locomotives for China

As already stated, the cylinders are fitted with air operated cylinder cocks, and United States metallic packings are used for the piston rods and valve spindles. Air sanding of the Gresham and Craven duplex type is used, from a sandbox mounted on the top of the boiler barrel behind the steam dome. Sand is delivered in front of the driving and behind the trailing coupled wheels. Westinghouse 6-ET type air brakes are fitted, and are being applied to all coupled wheels and those of the trailing bogie and tender.

The Tecalemit system of grease lubrication is used for all motion parts, namely coupling and connecting rods, gudgeon pins, coupled wheel hubs, eccentric cranks, brake and spring gear mechanism, and similar components. Ajax grease lubrication is applied to the axleboxes of the coupled wheels. The engine is equipped with Visco "D" type couplers supplied by the English Steel Corporation, Limited.

Design and Construction of Tender

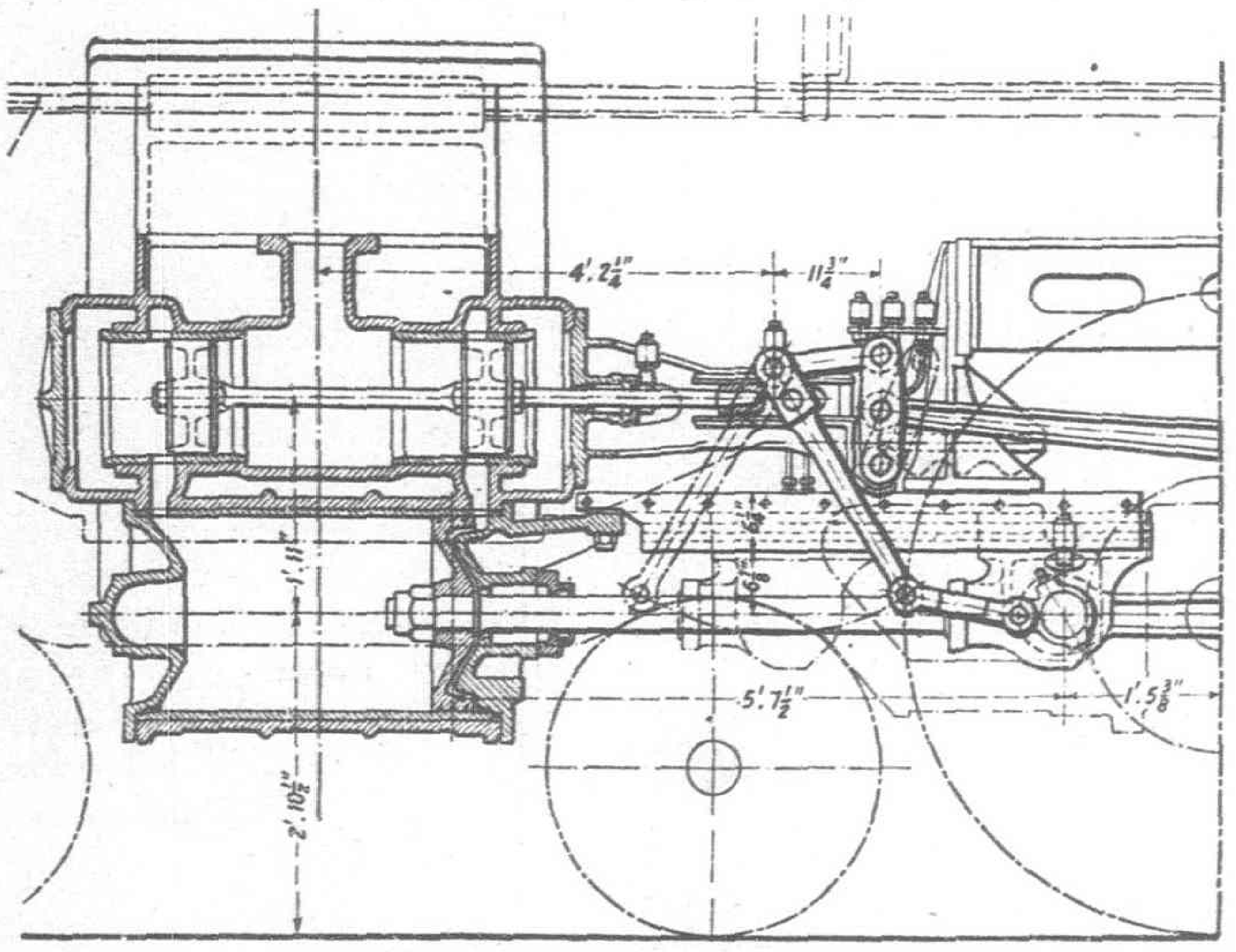
With a view to reducing dead weight as far as possible, the tender tanks are of welded construction. The bogies are six-wheeled, with outside frames and Isothermos axleboxes. On six of the tenders, *i.e.*, those of the last six engines in the first order, the front bogie is to be equipped with Stone's Class "D" type boosters, but the engines so fitted have not yet been completed. The two rear pairs of wheels of the booster-driven bogie will, as stated, be coupled by side rods having outside balanced cranks as shown in the accompanying drawings.

The central coupler at the rear of the tender is of the Visco "D" type fitted with Bradford Rocker type draft gear and Farlow Two Key attachment. Grease lubrication of the bogie centers, brake and gear springs is the Tecalemit system.

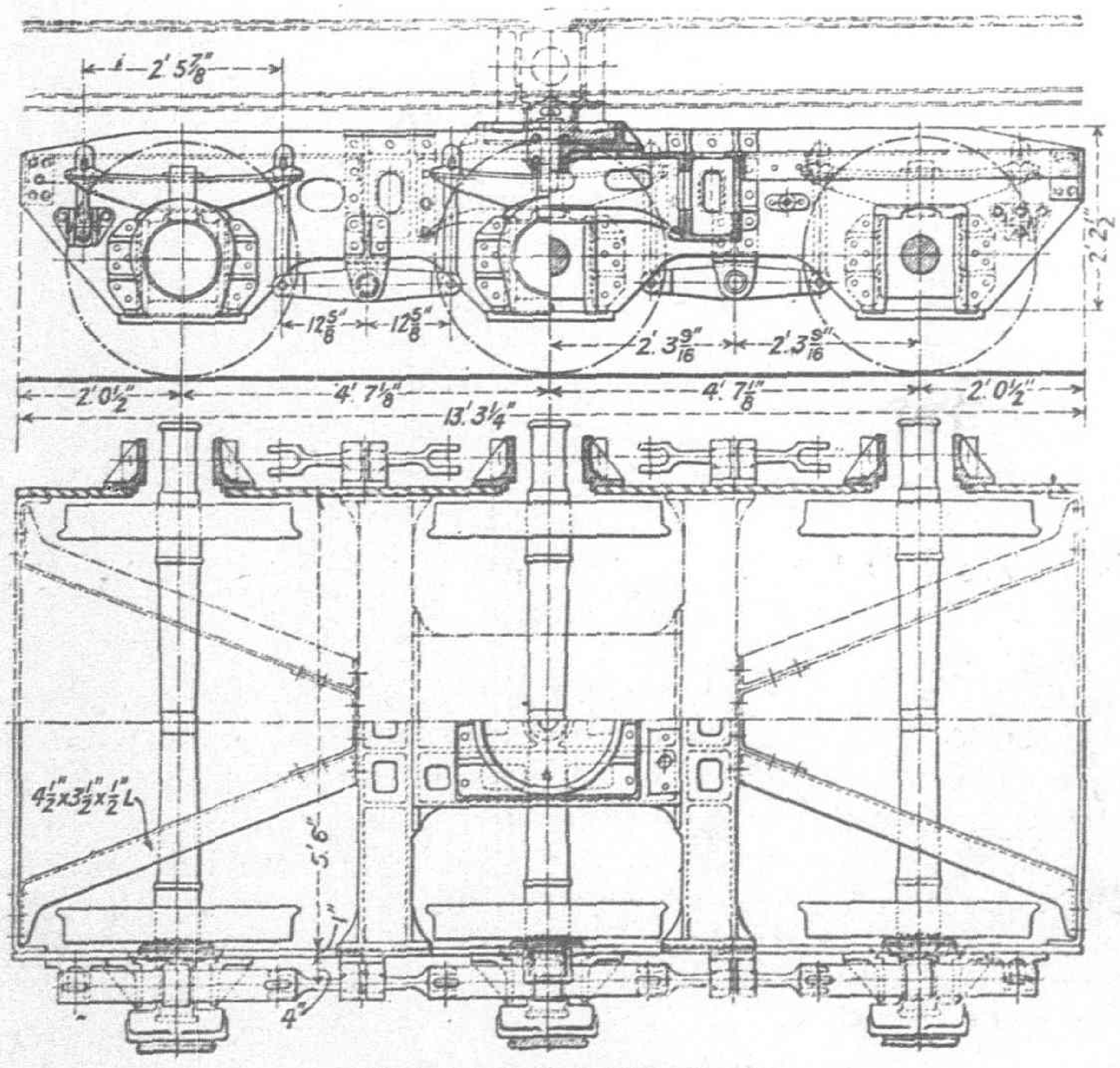
The following are the principal dimensions :—

Cylinders (2), dia.	$20\frac{7}{8}$-in.
Piston stroke	$29\frac{1}{2}$-in.
Wheels, coupled, dia.	5-ft. 9-in.
,, leading bogie, dia.	3-ft. $0\frac{1}{4}$-in.
,, trailing bogie, dia.	3-ft. $7\frac{1}{4}$-in.
Wheelbase, rigid	18-ft. $8\frac{7}{16}$-in.
Total engine	43-ft. $11\frac{7}{16}$-in.
Wheelbase, engine and tender	84-ft. $0\frac{15}{16}$-in.
Length of engine and tender overall ..	93-ft. $2\frac{1}{2}$-in.
Boiler height of center from rail	10-ft. 6-in.
,, length between tubeplates ..	19-ft. $0\frac{3}{8}$-in.
,, dia. at front end	5-ft. $10\frac{7}{8}$-in.
,, dia. at firebox end	6-ft. $6\frac{3}{4}$-in.
Steam pressure	220.5 lb. per sq. in.
Heating surface :—	
Small tubes (50)	560 sq. ft.
Large tubes (120)	2,088 ,,
Firebox	312 ,,
Arch tubes in firebox	28 ,,
Heating surface, total, evaporative ..	2,988 ,,
,, Superheater	1,076 ,,
,, Combined total	4,064 sq. ft.
Grate area	67.8-in.

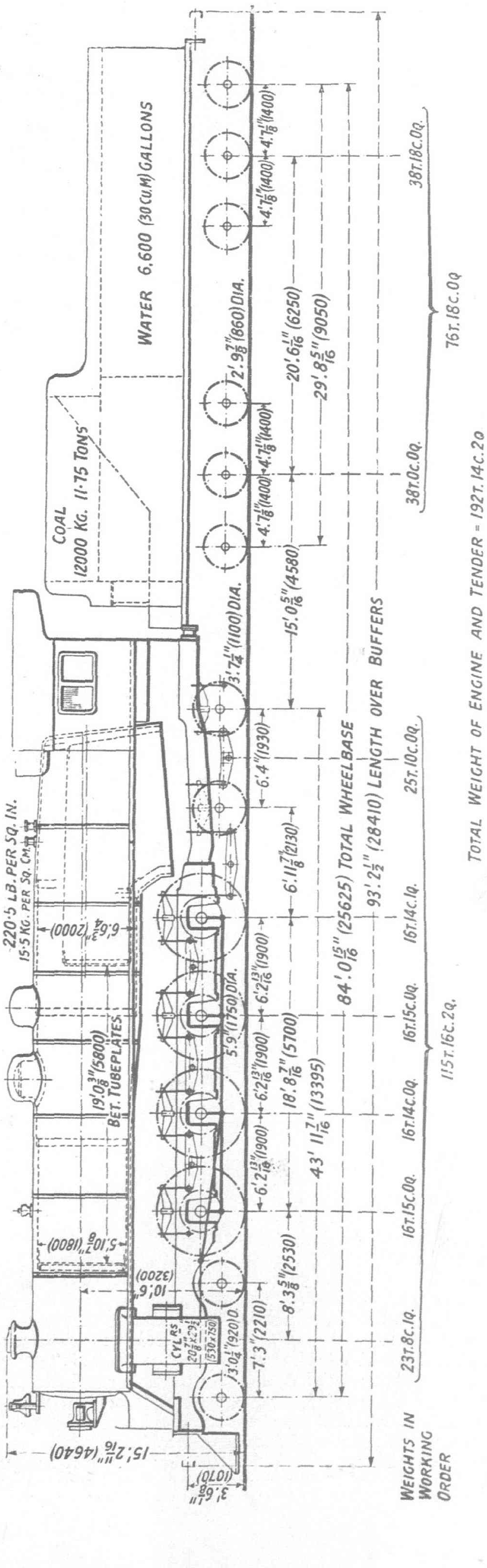
(Continued on page 93)



Cylinders and valve motion



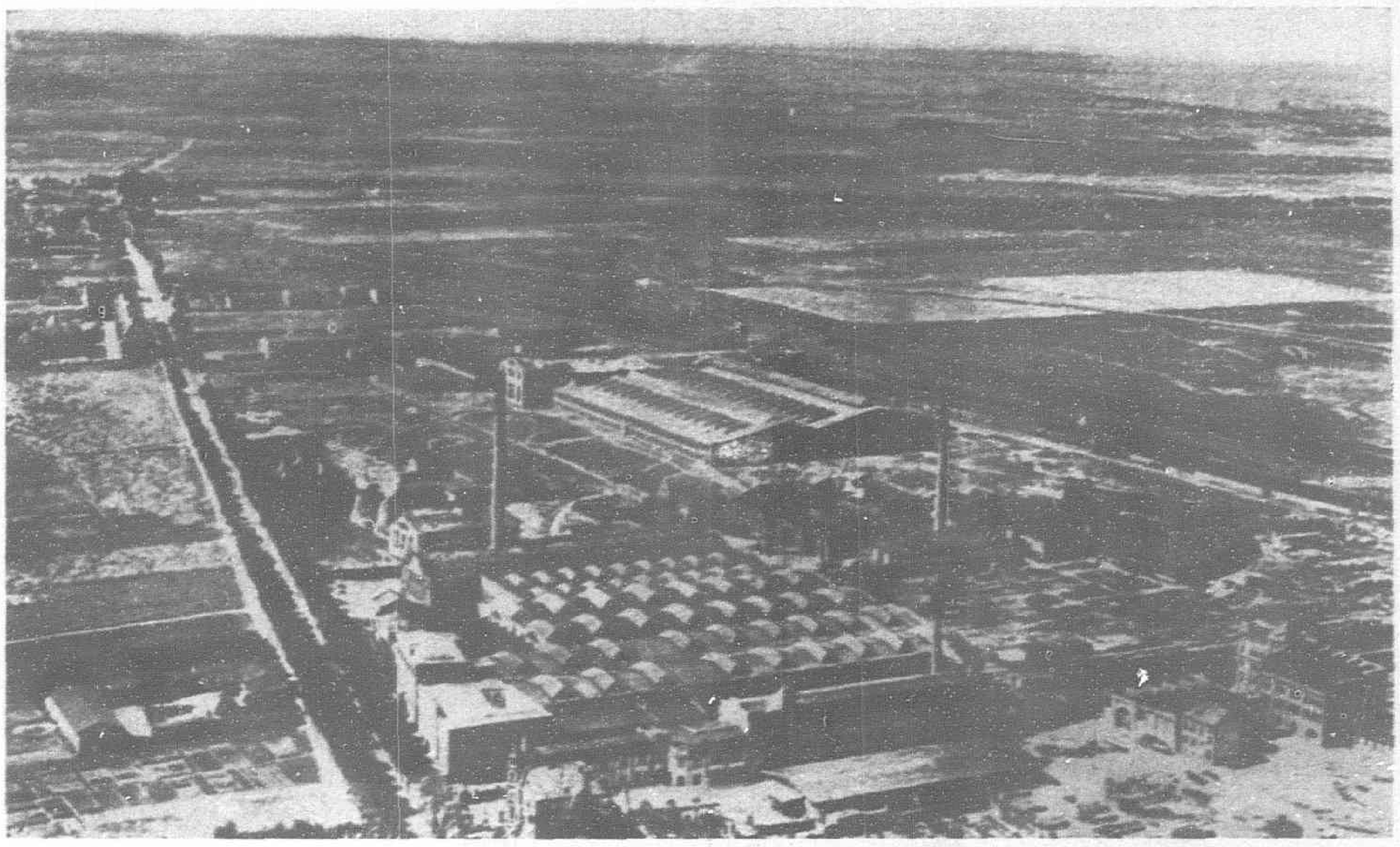
Six-wheeled tender bogie



Outline drawing showing principal dimensions and weight distribution of the new 4-8-4 type locomotives for the Chinese National Railways

Kiangnan Railway Gets Locomotive Built in Poland

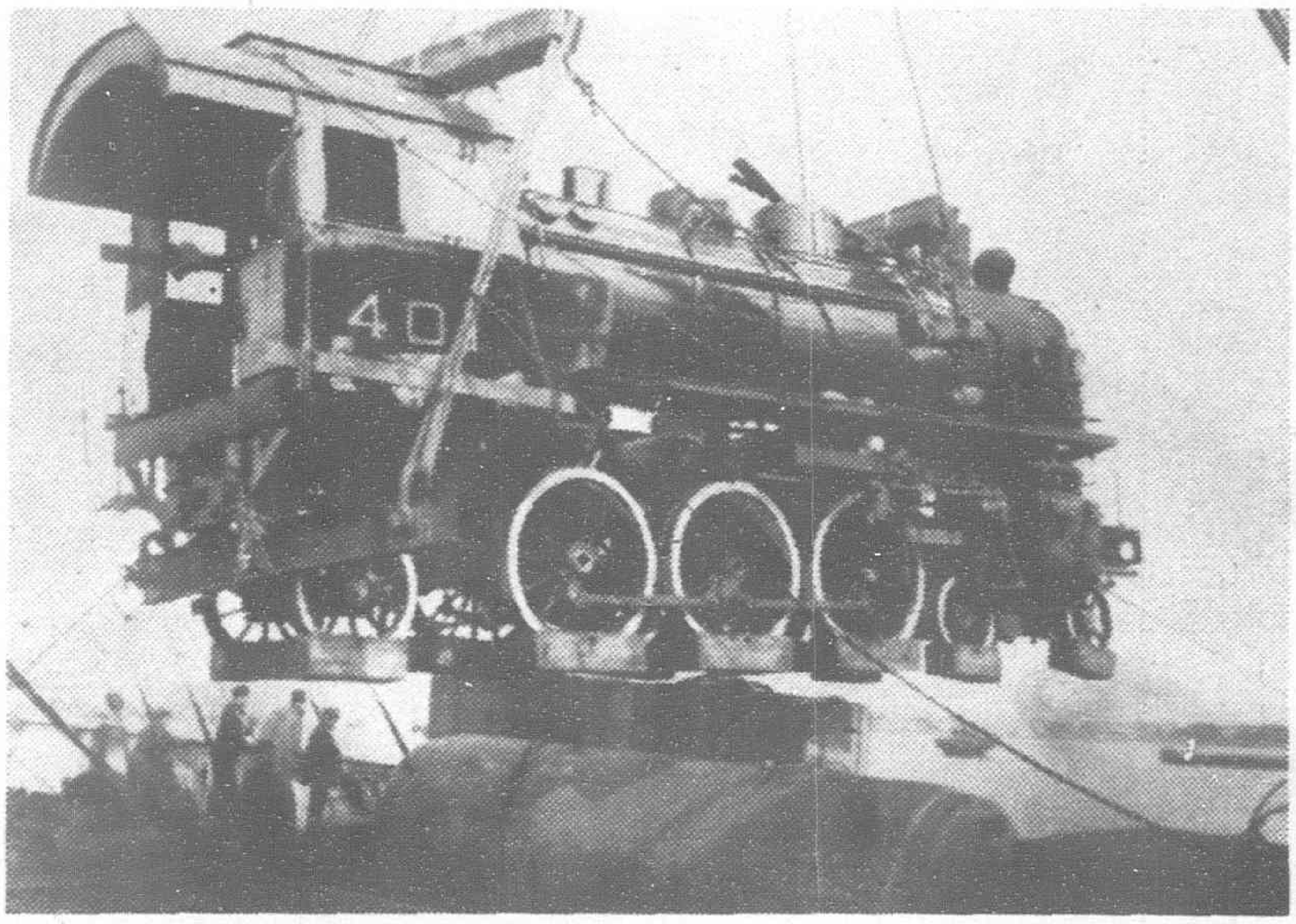
First of Kind Ever Shipped East of Suez is Product of Factories of Messrs. H. Cegielski, Ltd., of Poznan, Poland



Bird's eye view of department "C" including locomotive and railway wagon and carriage factories of the Polish Company of Messrs. H. Cegielski, Ltd. at Poznan

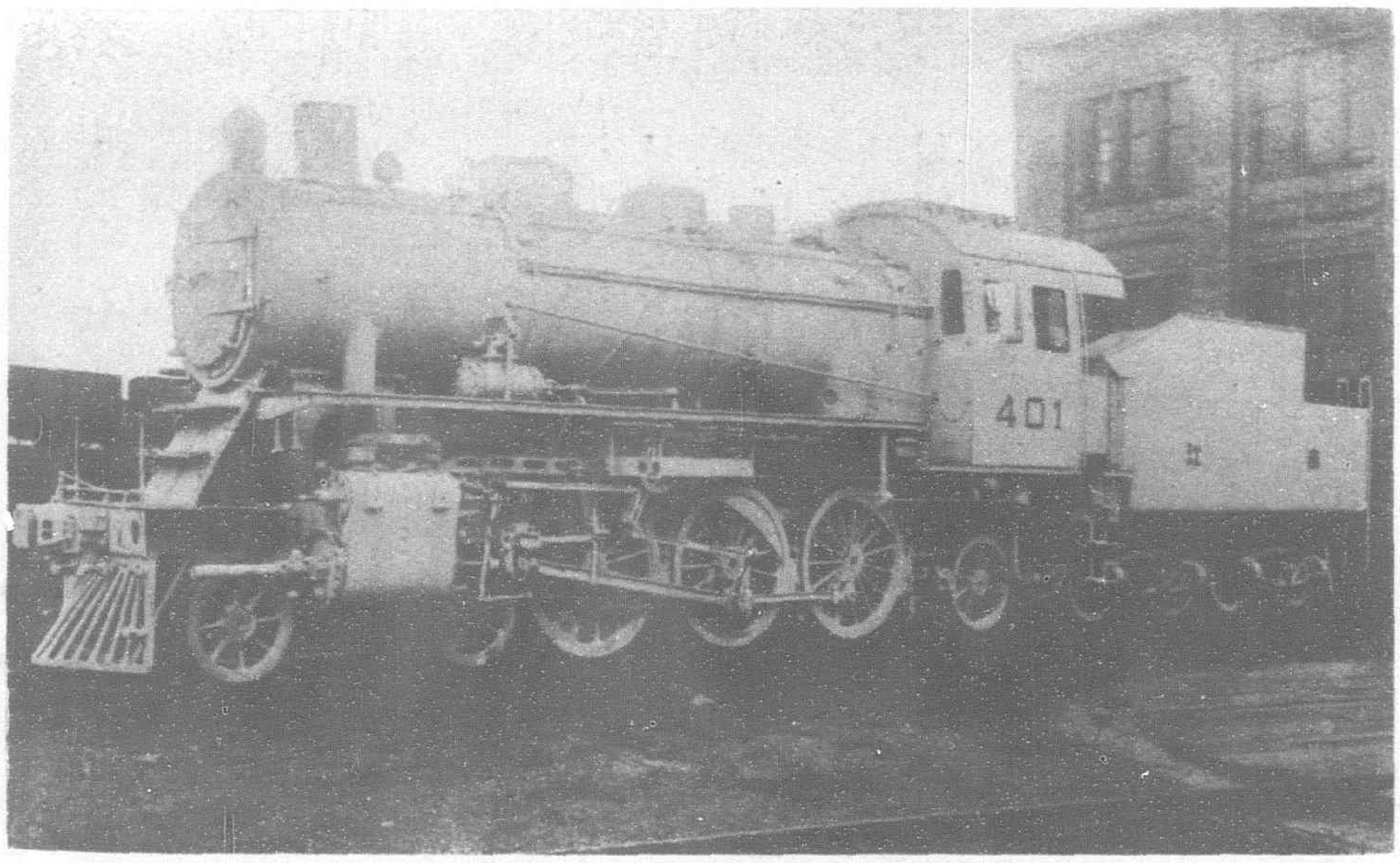
An outstanding event in the history of railway engineering in China was the delivery at Shanghai, in January, of a completely assembled Pacific type locomotive from Poland—the first Polish manufactured locomotive ever delivered east of Suez. It was built for the Kiangnan Railway at the works of Messrs. H. Cegielski, Ltd., at Poznan, Poland, and was sold through the agents for the Far East, Messrs. Kompanja Handlu Zamorskiego Ltd., of Warsaw, whose Far Eastern Resident Representative is Mr. John G. Chudzynski, 264 Kiangse Road, Shanghai.

The locomotive and tender, which together weigh 74 tons, were transported from Poland to Shanghai aboard the steamship *City of Hartford* and it was necessary to provide a specially powerful crane at the Nanking-Shanghai Railway's Woosung wharf for the unloading which took place on January 22. Two Polish engineers from the works of Messrs. Cegielski accompanied the locomotive and tender on the long voyage and were present at the tests that were made following a general inspection by engineers of the Kiangnan Railway Company. The initial test after the unloading was made between Woosung and Shanghai, when the locomotive easily attained a speed of 65 kilometers an hour without any perceptible rise in temperature in axles or journal boxes. Any higher rate of speed in this first test was impracticable owing to traffic on the line.



Showing unloading at Woosung of the Polish locomotive shipped to China assembled for service on the Kiangnan railway

The new locomotive is capable of driving an express train of normal length at a speed up to 90 kilometers an hour. On February 7, the locomotive under its own steam proceeded with the tender from Shanghai to Nanking under the supervision of Engineer S. Y. Kwai of the Kiangnan Railway Company and one of the Polish engineers, covering the distance of more than 300 kilometers in a highly satisfactory manner, as is attested by letters to Mr. Chudzynski and to his principals in Poland from officials of the Kiangnan Railway Company.

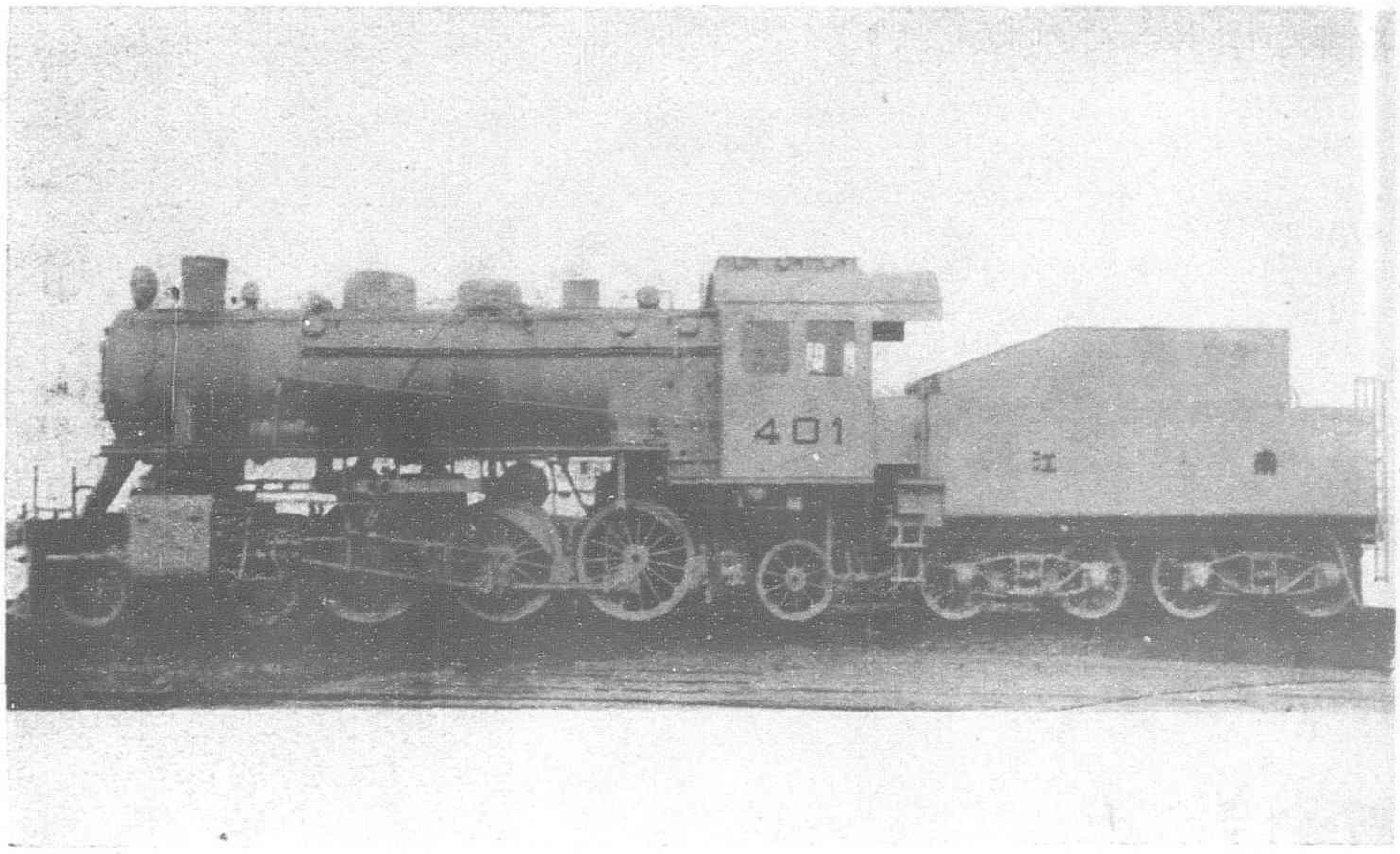


The Polish locomotive built for service in China as it appeared after completion at the factories of Messrs. H. Cegielski, Ltd. at Poznan, Poland

Before shipment to China the locomotive underwent inspection and tests by Messrs. Sandberg, Consulting and Inspecting Engineers, London, whose report sets forth that. . . . "The locomotive has been built in accordance with the specification attached to the agreement, the principal features being as follows :—

> " Boiler fitted with steel firebox and tubes, is suitable for a pressure of 14 kgs. per sq. cm. and equipped with a ' Schmidt ' type superheater.
>
> " Outside cylinders 480 dis. by 700 mm. stroke.
>
> " ' Gold ' heating system.
>
> " Stone's lighting.
>
> " Westinghouse brake gear.
>
> " A.R.A. ' D ' type automatic couplers."

In connection with the tests of the locomotive at Poznan, after checking the dimensions and making a general inspection for workmanship, the boiler was submitted to hydraulic and steam pressure tests, the former to 19 atms. and the latter of 14 atms. Under these tests the boiler was carefully examined for any signs of leakage at joints and rivets, when everything was found to be satisfactory. While under hydraulic pressure the firebox crown deflection was noted, the firebox returning to its original dimensions on pressure being released. A general examination of frames, cylinders, motion gear, wheels, axles, etc., disclosed that all were found correct to dimensions and of good workmanship. In a thorough inspection of the completed locomotive all dimensions were checked and all apparatus tried out after which the locomotive was tested in steam in a trial run on the Polish State Railways, the engine hauling a train of five wagons, weight about 200 tons, on a double journey of 80 kms.



Another view of the Polish locomotive supplied to the Kiangnan railway as seen on its initial trial run in Poland

General Specifications

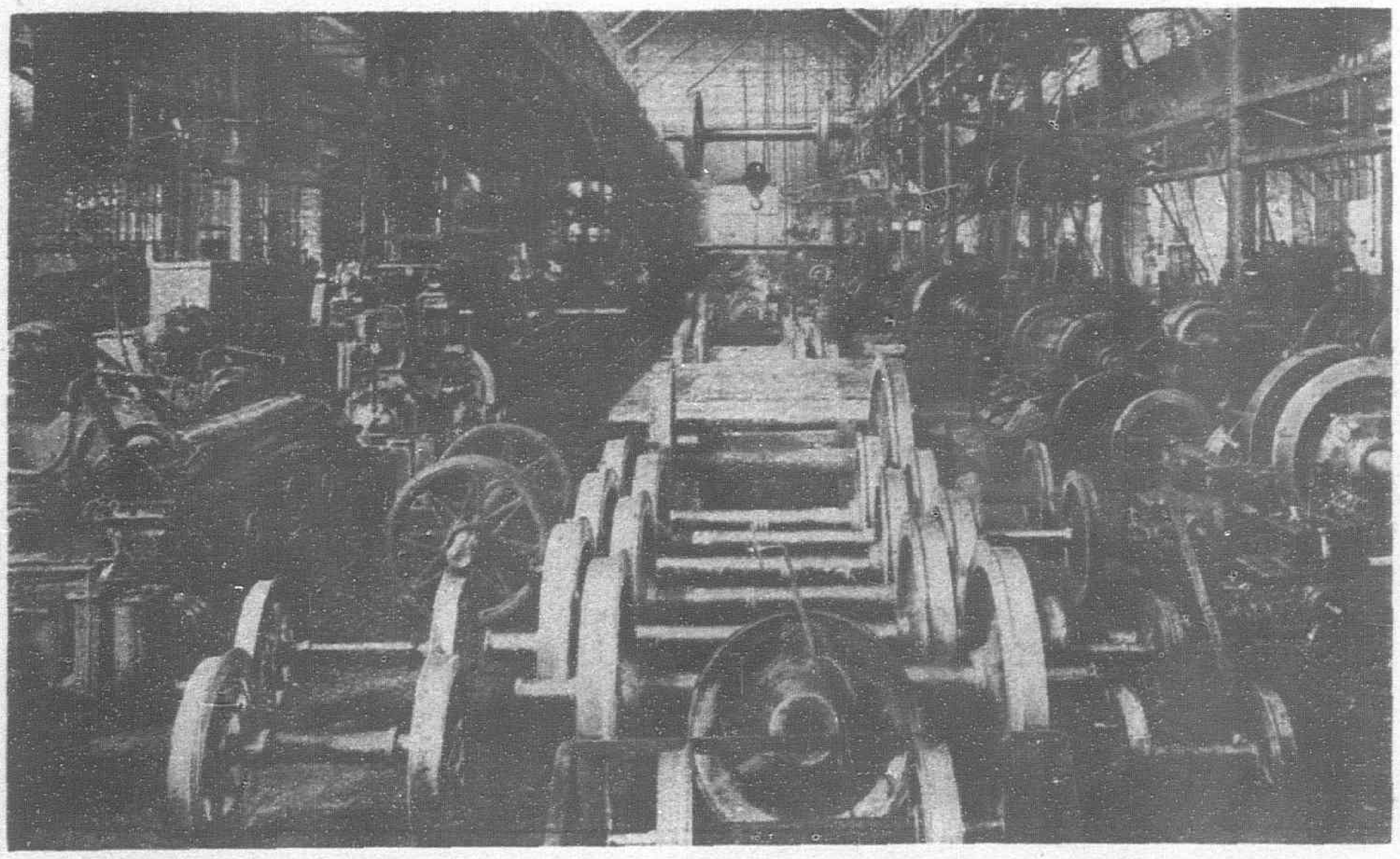
The general specifications of the new locomotive are given as follows :—

Gauge	1435 mm.
Diameter of cylinders	480 mm.
Stroke of piston	700 mm.
Driving wheels diameter	1500 mm.
Trailing wheels diameter	860 and 1000 mm.
Wheels base rigid	3300 mm.
Wheels base total	8650 mm.
Maximum speed	90 km/h.
Steam pressure	14 kg/cm².
Grate area	2,6 m².
Heating surface :	
Firebox	11,4 m².
Flue tubes	42,4 m².
Fire tubes	78,4 m².
Total evaporative	132,2 m².
Superheater surface	40,– m².
Length of tubes	4500 mm.
Tractive force /0,55 $\frac{d^2. s.}{D.}$ p/	8280 kg.
Weight in working order	60250 kg.
Weight adhesion	39000 kg.
Weight empty	54550 kg.
Tender :	
Weight in working order	48700 kg.
Weight empty	19700 kg.
Total weight of Locomotive and Tender in working order	108950 kg.
empty	74250 kg.

Additional Details

Additional details pertaining to the locomotive are given as follows :—

BOILER.—The boiler is designed to a straight top barrel and wide firebox type for burning butiminous coal.



Another part of the locomotive plant of Messrs. H. Cegielski, Ltd. at Poznan showing wheel bogies in course of manufacture

The barrel of the boiler is composed of two rings of which the front one has 1500 mm. and the hind one 1530 mm. Inside diameter of the plate of the barrel is 15 mm. thick. The longitudinal seams of the boiler barrel are butt-joined with double covering strips.

The axle of the boiler is 3000 mm. above rail level. The firebox is made of one plate 15 mm. thick.

The back plate, slightly inclined backwards, is 15 mm. thick ; the front plate is 16 mm. thick.

The steel inside firebox is connected to the outside firebox by steel stays and staybolts (abt. 300 staybolts).

The inside firebox can be removed below without unriveting the outside firebox.

The inside and outside fireboxes are connected through a foundation ring, section 70 by 90 mm. They are also connected through a ring section 50 by 70 mm. for the fire door.

The fire grate bars are located laterally, slightly inclined forwards, and can be rocked with a drop grate in the front.

The ash-pan is of the double hopper type with dumpers, ash-pan doors and also fitted with a water sprayer from tender for cooling ashes.

The diameter of flue tubes is 125/133, of fire tubes 45/50, and the length of tubes is 4500 mm.

Two arch tubes of 69/75 in diameter with arch brick are provided.

The Superheater, type Schmidt, is composed of 24 elements, diameter 29/36 and gives a superheating of 350.

The tubes are expanded in the smoke box tube plate ; in the firebox tube plate they are expanded and beaded over.

The nest of the boiler tubes is arranged so as to give a good water circulation.

The fire door is operated by compressed air but can be also operated by hand. Same is of the Franklin type.

The chamber throttle valve is well balanced and easily opened.

The steam turret is placed inside the cab on the top of the boiler, takes the steam from the dome, has different valves for blower, air pump, etc., moving by oblique expansion rods and a main valve for opening and closing communication with the steam in the boiler.

The boiler has two reflex water gauges and two test cocks.

The feeding of the boiler is made by two self-starting injectors "Simplex No. 9," through feeding check valves placed on the front part of the barrel, whence the water goes into water channels and disengages mud which remains in the collector placed below the barrel. The mud can be conveniently removed by a special valve.

The boiler is fitted with safety and control apparatus such as two safety valves, three steam pressure gauges (one for boiler, one for cylinder chest and one for heating), two fusible plugs, whistle blow off cock, warning bell, air sander device, suitable number of wash plugs, inspection doors, blower valve for watering the coal, the smoke box and ash-pan, air-pressure gauges, etc.

The smoke box contains a spark arrester having openings of 2 by 10 mm.

UNDERFRAME.—Is composed of steel bar frame, carefully designed and of good strength.

The firebox rests on steel castings in which are wedges, preventing the lateral movement of the boiler. The boiler is connected with the underframe by swing plates.

The underframe is supported in four points, which is realized in such a way that all the springs, except that on the four-wheel truck, are connected on each side by longitudinal equalizers.

The four-wheel leading truck has plate frames 25 mm. thick and tightenings with plates and angle iron. The locomotive underframe rests on the lateral sliders of the truck.

The truck pin is fastened to the underframe and enters into a bush placed on the truck, having 100 mm. lateral move on each side.

The trailing truck with one axle is Adams type and has 80 mm. lateral move.

In the front of the underframe a well designed cowcatcher is provided.

TABLE SHOWING THE MAXIMUM PERMISSIBLE LOADS OF THE PACIFIC TYPE LOCOMOTIVE NO. 401 ERECTED BY H. CEGIELSKI, LTD. OF POZNAN, POLAND, FOR MESSRS. THE KIANGNAN RAILWAY CO., LTD., OF WUHU.

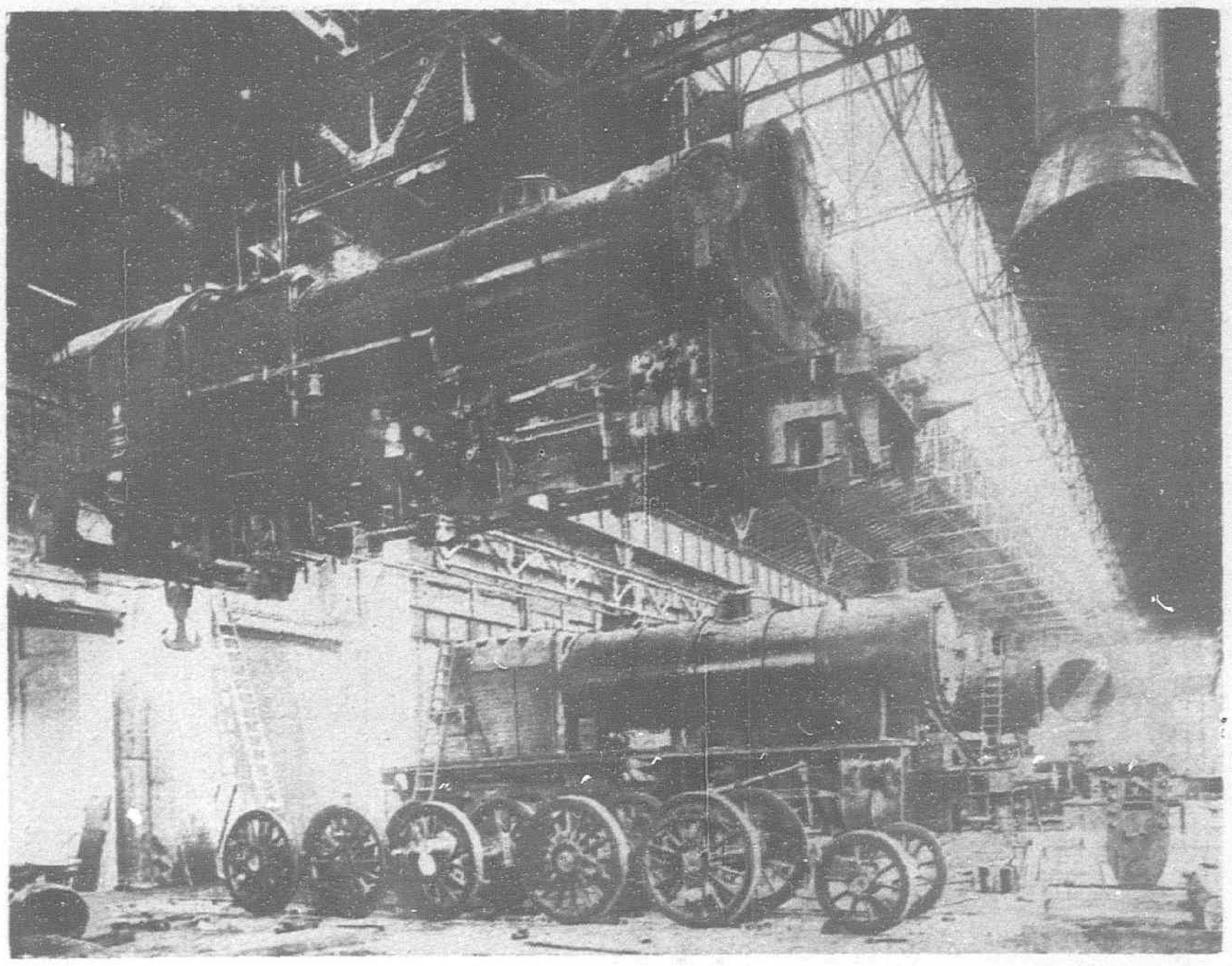
(This table shows the co-relation between permissible load, speed and gradient).

Speed in Km/hour.	10	20	30	40	50	60	70	80	90
Gradient of track	T	O	N	S					
0	O						640	530	390
1/1000	N					705	510	350	240
2/1000	S					570	420	290	200
3/1000					640	475	355	245	165
4/1000				730	540	405	300	210	140
5/1000				620	440	350	260	180	120
6/1000			730	540	400	305	225	155	105
7/1000			640	480	355	270	200	135	90
8/1000		730	570	425	315	235	175	120	75
10/1000		595	460	340	250	190	140	90	50
14/1000		420	320	235	170	125	85	50	
20/1000		280	210	145	100	70	40		
25/1000		210	160	100	65	40			

The above Table is figured out when the train is composed of mixed: 2-axle and 4-axle wagons.

If only 2-axle wagons will be included in the train, the maximum permissible load will have to be reduced by 20%.

The Loads are expressed in Metric Tons.



An interior view of the locomotive plant at the factories of Messrs. H. Cegielski, Ltd., in Poznan, Poland, showing one of the huge travelling cranes in action. These lift up to 120 tons

WHEELS AND AXLES.—The axles and tires are of open-hearth steel.

All the wheel centers are cast steel, the driving wheels are balanced with counterweights.

The tire thickness is 85 mm. in driving wheels and 65 mm. in other wheels.

The axle box is cast steel with bronze brass and there is also a bronze liner in the box face in contact with the wheel centers.

The driving boxes are provided with adjustable wedges and fitted with a lid to facilitate removal of waste.

MECHANISM.—The valve gear is of the Walschaert's system and is operated by a power reversing gear located on the left side of the engine, actuated by air and steam combined.

The piston valve is 220 mm. in diameter and of inside admission type.

The steam lap is 40 mm. and the exhaust lap is 2 mm.

All the parts of the mechanism are in bronze, bushed at the joints, the pins are of extra steel, tempered and case hardened.

CYLINDERS.—The cylinders are outside the frame. They are of special cast iron close grained, bored and polished with utmost care. Each has an automatic by-pass valve, two relief valves and three drain cocks.

PISTON.—The piston head is of special cast iron, close grained, packed with fine grained iron rings fixed on piston rod against a collar and secured on the other end by a nut and cotter.

The valve and piston rods are packed with metallic packing.

In general the engine allows a use of water from 6 to 6½ kg. per indicated h.p.

BRAKE.—The locomotive is fitted with the Westinghouse E.T. No. 6 system brake, acting on all the coupled wheels and tender wheels. The latter also are provided with hand brakes.

The air pump is 9½-in. size.

LIGHTING.—Electric lighting, Stone L.B.B. 500 w. 32-volts is provided. One head lamp on the engine and tail lamp on the tender, as well as a suitable number of small lamps in the cab front board, piping and near the valve gear.

HEATING EQUIPMENT.—Steam heating Gold type is provided, with piping through both ends of the engine and tender.

COUPLER.—Coupler of the A.R.A. "D" automatic type with 11-in. long knuckle is provided.

LUBRICATOR.—Five feed, sight-feed lubricator of Nathan's type is used.

COCKS.—All the cocks are in bronze containing 90 per cent copper and 10 per cent tin.

LAGGING.—Boiler shell and cylinders are covered with Asbestos laggings.

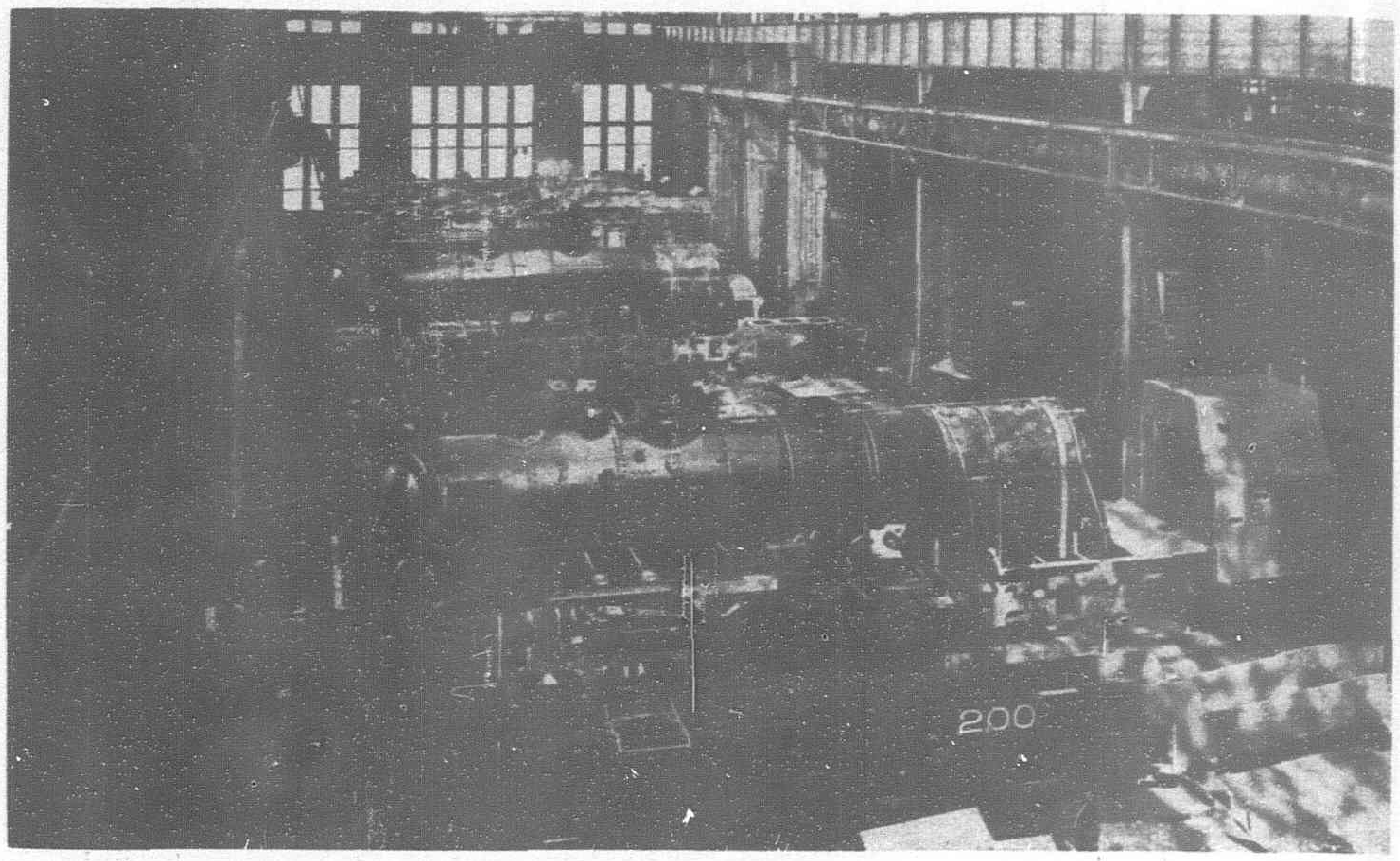
Cab.—The cab is made of steel plate and has sufficient space for convenient operation. Two comfortable driver's seats, covered with leather are provided, as well as arm rests, tool boxes, doors, windows, and hand rails convenient for use.

The engine is operated on the left hand side.

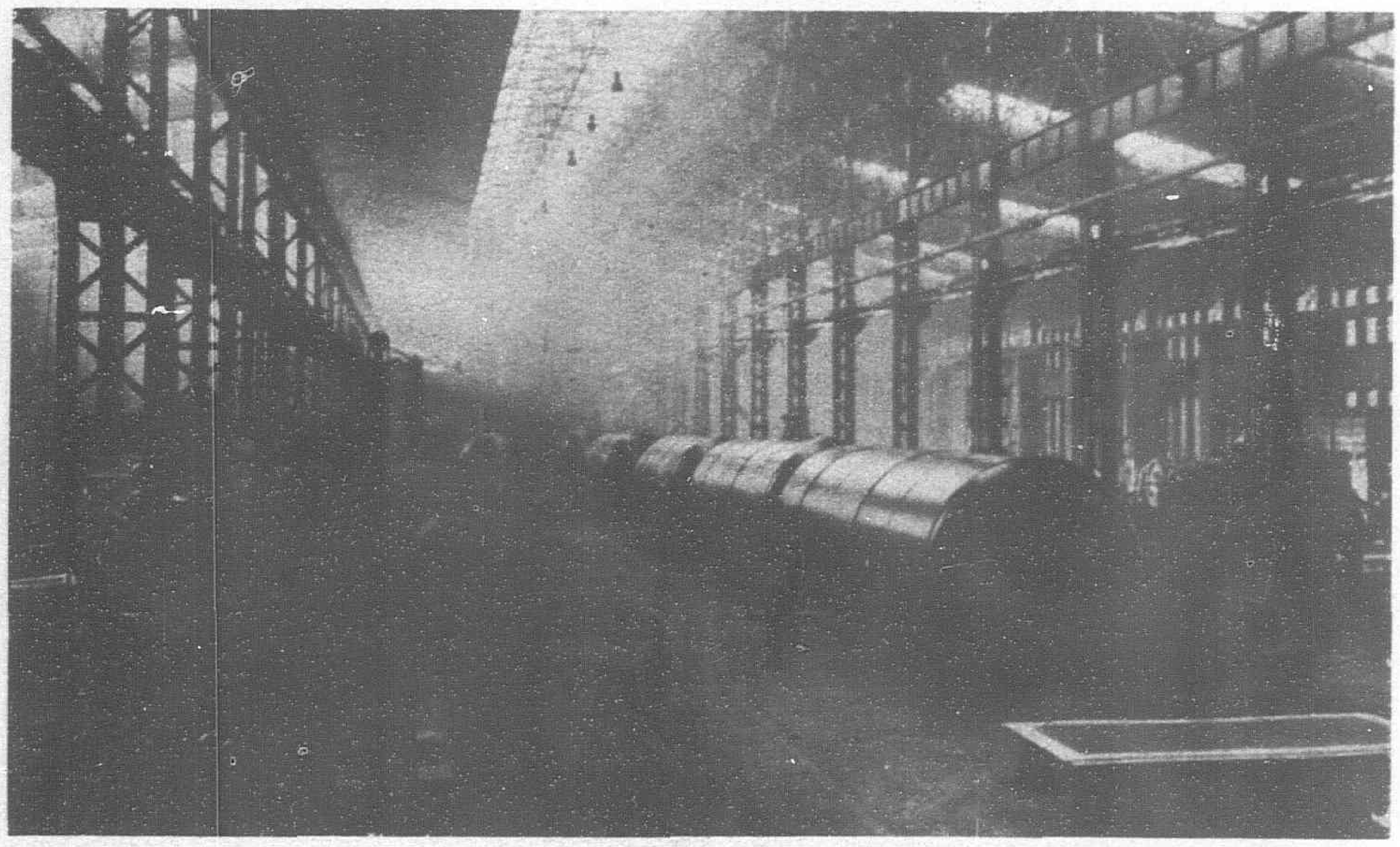
Tender.—Two four-wheel bogie trucks, with wheel diameter 1000 mm. Wheel center is cast steel and fitted with open hearth steel tyre 65 mm. thick. The tender has a case of a volume of 21 tons for water and eight tons for coal. The case has numerous lightenings, Special swash plates are placed across for breaking the waves caused by stopping or starting the engine too suddenly.

Speedmeter.—The engine is provided with a speedmeter of up-to-date automatic type.

Materials.—All properties and tests of materials used in the manufacture were in strict accordance with the practice of the Polish State Railways.



Scene in the locomotive boiler division of the factories in department "C" of Messrs. H. Cegielski, Ltd., at Poznan



Another view of the boiler room of the locomotive factory of Messrs. H. Cegielski, Ltd. at Poznan

Company Has Long History

The builders of this first Polish locomotive to be brought to China, Messrs. H. Cegielski, Ltd., form one of the oldest engineering enterprises in that country, having been established in the year 1846. Originally the activities of the company were devoted to the manufacture of agricultural machinery and implements, but thirteen years after the company was founded it began to expand and in 1859 its factories were enlarged considerably and an iron, steel and brass foundry was established to provide materials needed by the machinery department. In 1886 another new department was established for the manufacture of locomotives, steam engines and complete installations for alcohol distilleries and starch mills. In 1913 it became necessary to greatly enlarge the plant by the erection of a number of new buildings to accommodate the ever-growing departments then in existence and a number of new departments were added including a metal turning works and a locksmith plant. At this time also a private electric light and power plant of high capacity was erected.

Locomotive, Wagon and Carriage Plants Built

The plants for the production of locomotives, railway wagons and carriages were built in 1925-26 and these were equipped with the most complete and up-to-date machinery, enabling the company to produce large locomotives as well as passenger and freight cars of every type. It was necessary in 1928 greatly to increase the size and equipment of the locomotive factory and the railway wagon and carriage plants and at this time the latest machines were acquired along with scientific apparatus to cope with swiftly increasing production.

The H. Cegielski, Ltd. enterprises of to-day are included within four main departments as follows :—

(*a*) At the suburn of Glowna in Poznan : Iron, steel and brass foundries, factory for the manufacture of screws, rivets, bolts and nuts. Agricultural machinery factory.

(*b*) At Strumykowa street in Poznan : Factory for the manufacture of alcohol distilleries and refineries and starch plants. This department also supervises extensive mechanical and general repairing workshops.

(*c*) At Gorna Wilda street in Poznan : The locomotive factory, railway wagon and carriage building plant. High pressure boiler factory. Factory for manufacture of machinery for sugar plants and heavy and light chemical industries.

(Continued on page 93)

Showing the boiler workshop in the locomotive factory of Messrs. H. Cegielski, Ltd. at Poznan

The Kwangtung Iron and Steel Works Project

By C. K. HO

THE Kwangtung Iron and Steel Works project is one of the most important construction schemes of the provincial three years plan. The Works will be built for the manufacture of the following, coke, pig iron, rails, bars, structural shapes and other steel products, as well as various by-products such as benzol, toluene, naphthalene, ammonium sulphate, tar and blast furnace slag.

Comprehensive investigation of the mineral resources of the province was started five years ago under the direction of the writer. The investigation lasted over two years, and as a result, it was discovered that ample coal and iron deposits occur in the province justifying the building of a provincial steel plant. The nature of the ores has been carefully studied, and extensive prospecting work was made to determine the reserves of the ore bodies. The problems of marketing as well as the selection of products were also looked into. It is now decided that a medium sized plant should be built in the beginning:

(1) Capacity of Blast Furnace (initial). 275 tons daily (same furnace can be enlarged to 500 tons daily capacity).

(2) Capacity of Open Hearth Furnaces, 286 tons daily (three furnaces of 75 tons capacity each, two in operation, one stand by).

(3) Capacity of the by-product coke ovens, 572 tons of coal carbonized daily.

(4) Rolling Mill to take care of the 286 tons ingots daily, producing various sizes of shapes and sections, with a yearly output of approximately 100,000 tons of steel products.

In view of the importance and size of the project, the government has pursued a safety first measure in engaging a consulting engineering firm to check up the raw materials and to make detailed specifications and designs of the plant. Messrs. Arthur G. Mckee & Co. of Cleveland, Ohio, U.S.A. was engaged to do the work. After an intensive field, laboratory and office study of the problem, a report was presented to the government by the company for consideration. The main parts of the report are abstracted as follows:

(1) *Raw Material.*—All raw materials for the production of iron and steel may be obtained in Kwangtung or in its neighboring provinces. (*a*) The amount of high grade iron ore in the Won Fu deposit is ample to justify the construction of a 250 tons or 500 tons blast furnace. Sufficient reserves for enlargement of the plant beyond this capacity or for building other plants are practically assured from other prospected deposits, notably Chi-kam and Pao-on. (*b*) From the Won Fu and Chi-kam ores, pig iron can be produced that will be satisfactory for making steel by the basic open hearth process and possibly by the acid Bessemer process. (*c*) The Won Fu and Pao-on ores are readily accessible by cheap water transportation. (*d*) Transportation of Chi-kam ore would be more difficult but before it is needed, the building of the Canton-Swatow railroad may make it available. (*e*) There are several known deposits of good coking coal in the Kwangtung area and good indications of others. Of the former, the Si-wan coal in eastern Kwangsi and the Kou-ya-tung at the North River near the Hunan border are the most satisfactory. (*f*) Limestone, manganese ore and other miscellaneous raw materials needed in making iron and steel can be readily secured at reasonable cost from quarries or mines in the Kwangtung province.

(2) *Plant Site.*—The plant will be located at Tung-long on the right bank of the Pearl River about four miles from the central part of Canton city. At Tung-long, ocean going vessels can reach and be docked alongside the plant, making possible the use of materials from other provinces and the shipment of products to other ports with a minimum of transportation costs.

Iron comes down by water from the west river and coal comes down by rail from the Canton-Hankow railway from the northern part of the province. Canton is the chief center of consumption of iron and steel in South China. It is centrally located in regards to the various iron ore deposits of the province. Finished products can be shipped direct to other parts by ocean going steamers.

(3) *Available Market, Production and Profit.*—In projecting this plant, the Kwangtung Provincial Government has in mind utilization of a considerable part of its production in industrialization schemes. As many railways have been projected, it is certain that demand for rails and other products of the proposed plant will be brisk. The market for iron and steel other than track building materials can be determined by study of import statistics in the Chinese Maritime Customs' report. As there are no modern blast furnaces or steel plants in operation in China to-day, the proposed plant will be, for the time being, without competition from any local or other Chinese establishments.

The average annual import of iron and steel into China, taken from the records of the Chinese Maritime Customs for the past five years, was about 530,000 tons of which 360,000 tons were primary products. From this figure, we calculated that the expected market consumption for our plant should be about 103,000 tons per annum.

For initial and minimum operation, the rate of production will be at about three quarters of the capacity of the plant. The annual output therefore will be 75,000 tons of steel of which 36,200 tons will be light products and 38,800 tons heavy products. In addition to the steel products, there will be about 5,000 tons of pig iron for sale, besides the various by-products obtained from the by-products coke ovens and from the blast furnace slag, etc. The expected yearly profit derived from the production of the plant, according to the calculation of Messrs. Arthur G. Mckee & Co., will be G$1,500,000 before capital investment carrying charges are included.

(4) *Estimates of the Cost.*—(*a*) Power plant G.$725,000, (*b*) Blast furnace plant G$914,000, (*c*) Coke plant G$1,121,000, (*d*) Material handling, dock, ore bridge, etc., G$559,000, (*e*) Open hearth furnace G$1,059,900, (*f*) Rolling mills G$1,396,000, (*g*) Travelling cranes G$403,000, (*h*) Forge shop equipment G$7,900, (*i*) Carpenter shop equipment G$5,800, (*j*) Boiler shop equipment G$9,900, (*k*) Machine shop equipment G$34,400, (*l*) Soaking pit furnaces G$217,500, (*m*) Plant grading, track work, fence, water lines, sewers G$322,000, (*n*) Miscellaneous buildings—office, laboratory, shops, etc.—G$163,000, (*o*) Outside steam and exhaust lines G$29,000, (*p*) Electrical distribution and connection G$46,500, (*q*) Gas distribution system G$235,000. Thus making a total cost for the whole plant a sum of G$7,250,000. In addition there will be a cost for engineering, purchasing, and supervision of construction of G$25,000, making a grand total of G$7,500,000 (the above estimate was made in October, 1933, at the prevailing prices of machinery and materials of that time).

(5) *Personnel.*—The number of employees that will be required for administration and operation of the proposed plant is as follows: General and office 99; shop and stores 58; labor and masons 43; laboratories 28; railroad plant and dock 48; coal, coke, and by-products plants 79; blast furnace department 101; open hearth department 118; rolling mills, general, both mills 13; No. 1 mill 155; No. 2 mill 92; mechanical, both mills 79; total for rolling mills 339. So the total number of employees for the whole iron and steel plant will be 913 altogether.

APPENDIX.

Supply of Raw Materials for the Steel Works

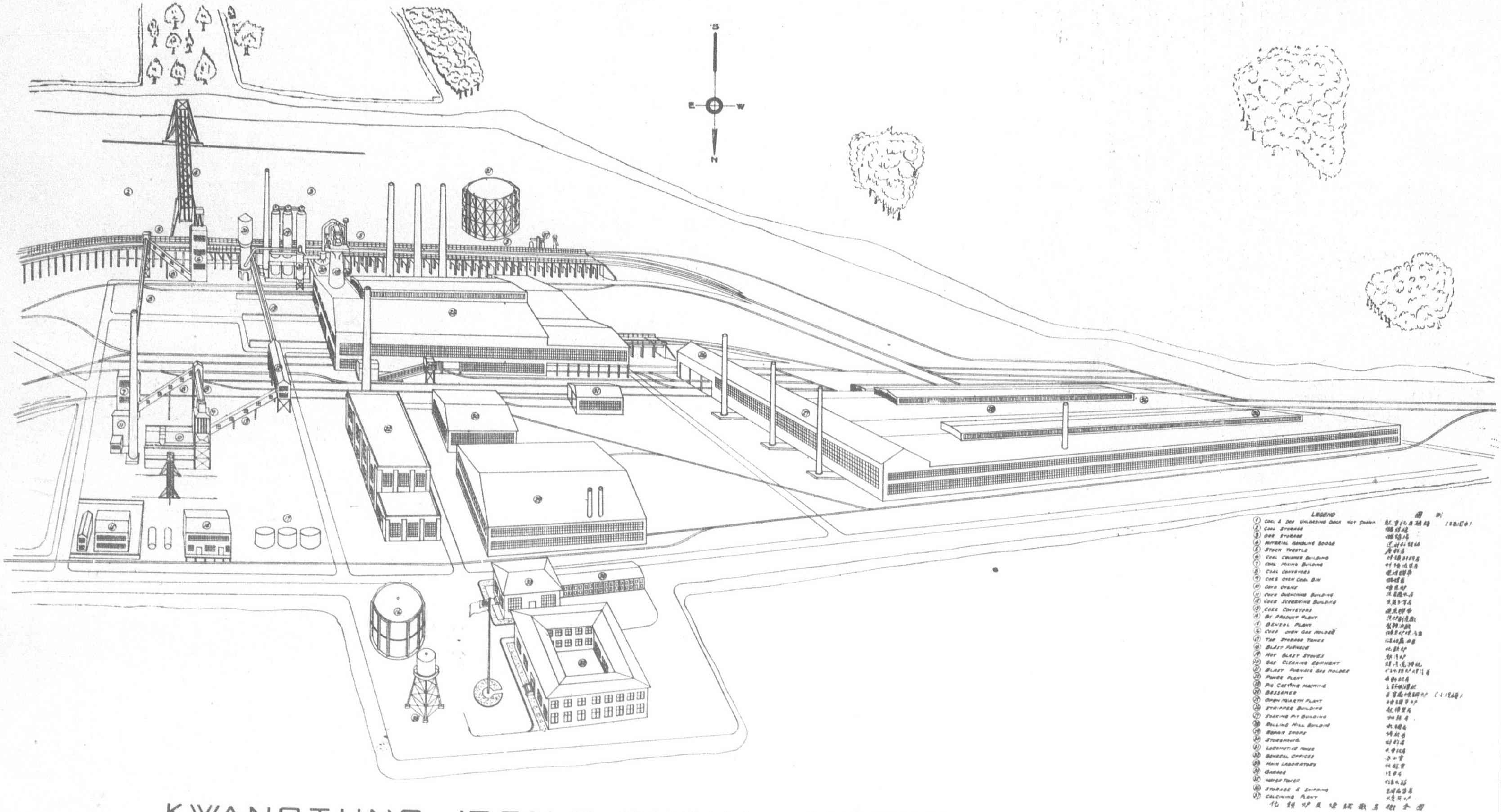
(1) Won Fu iron ore mine.

(*a*) Analysis:

(Sampled by Mckee & Co.)		(By Dept. of Reconstruction)	
Fe	53.43%	Fe	57.55 %
S	0.33 %	S	0.40 %
P	0.038%	P	0.064%
SiO_2	3.63 %	SiO_2	1.83 %
Al_2O_3	4.04 %	Al_2O_3	6.8 %
CaO	0.14 %	CaO	0.20 %
MgO	0.23 %	H_2O	2.21 %

Loss on ignition 15.16%

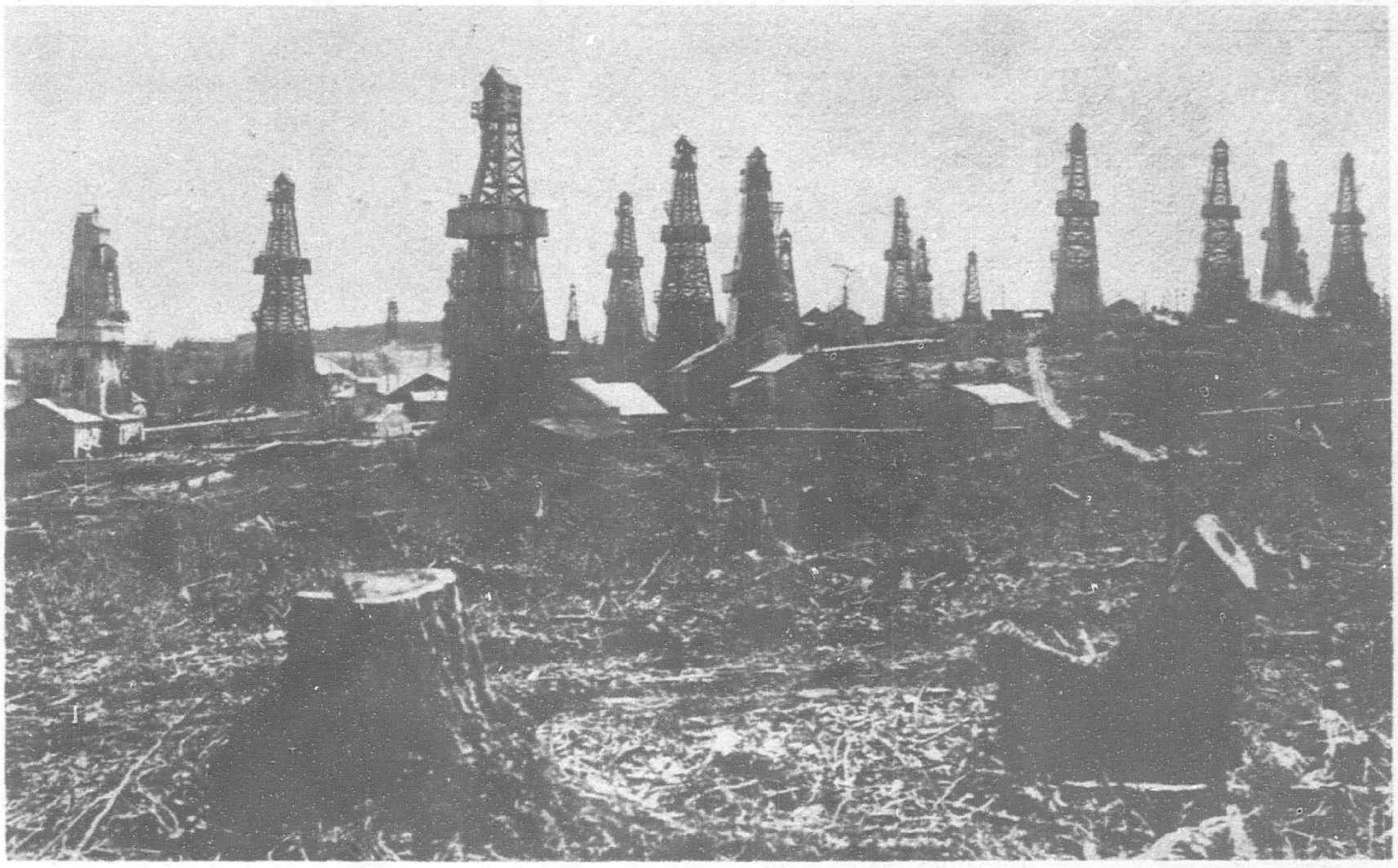
(Continued on page 93)



KWANGTUNG IRON & STEEL WORKS
廣東鋼鉄廠
KWANGTUNG PROVINCIAL GOVERNMENT CANTON CHINA
廣東省政府建設廳

Japanese Oil Wells in North Saghalien*

By *HIDEO BABA*



Russian oil wells in North Saghalien

JAPAN acquired oil concessions in northern Saghalien, together with coal rights, as indemnity for the Nikolayesk incident and the Siberian expedition. Ten years have elapsed since the North Saghalien Petroleum Company was organized through the encouragement of the Japanese Government for the development of Japan's oil industry in that country. The company, however, has now announced that it will pay no dividends this year, indicating that the enterprise has not been profitable. Under the circumstances, those interested expressed dissatisfaction, insisting on a rationalization of the industry, urging the advisability of making the firm a semi-official organization and asking for a thorough review of the circumstances surrounding the concession rights.

In the midst of this situation, a new president of the company was named, Vice-Admiral Nakazato being succeeded by Vice-Admiral Sakonji. Soon after the latter assumed office, he visited North Saghalien and investigated the oil fields thoroughly, spending more than one month there, returning to Tokyo the latter part of August. Since then, he has been considering plans for improving the condition of the company.

What accounts for the present difficulties of the company active in a region where it is entitled to full rights of development under treaty provisions, especially in these days when the protection of Japan's oil industry is so greatly empasized ? The petroleum oil industry, differing from many manufacturing industries, cannot increase its output suddenly by the enlargement of productive equipment. This is apparent when we compare the increase in the number of wells with that of oil output, for instance, in the eighth oil field of North Saghalien located at 53 deg. 30 min., north latitude.

	Number of Wells	*Oil Output in Tons*
1926	6	37,233
1927	9	77,226
1928	12	121,356
1929	27	186,641
1930	23	192,145
1931	21	186,392
1932	32	186,633
1933	35	193,355
1934	17	161,847

Although some of the wells are already running dry, the company has been producing 450 tons a day from 159 wells. Soviet Russia, however, has been producing 650 tons a day from 166 wells although she did not start work until a few years later than the Japanese, indicating that the success of the industry depends upon the location or quality of the oil well. It follows that Japan should acquire as many as possible better wells in order to compete with Soviet enterprise. The depth of oil wells in north Saghalien is also comparatively shallow as seen by the following figures :

60 wells with an average depth of from 30 to 60 meters.
50 wells with an average depth of from 100 to 150 meters.
37 wells with an average depth of from 250 to 300 meters.
7 wells with an average depth of from 300 to 350 meters.
4 wells with an average depth of from 650 to 700 meters.

Since the depth ranges from only 30 to 150 meters, it does not appear at first glance to be a serious task to drill such wells. In reality, however, such is not the case, for the Japanese enterprise is beset with all kinds of artificial and natural obstacles.

Let us see some of the difficulties with which the Japanese company is beset. Geographical conditions are one. The oil fields are situated north of 50 degrees north latitude, where about one half of a year is winter. During this period, the ground is covered with a thick mantle of snow and all the waterways are frozen, with the result that transportation between Japan and the northern part of Saghalien is suspended. In summer, when the eastern coast is buffeted by violent storms sweeping down from the Okhotsk Sea, no coastal shipping or dock equipment can be utilized. The construction of piers on the eastern coast is thus impractical. For this reason tankers usually anchor at a point about a mile or two off the coast, connection with land being maintained by small steamers. When the wind begins to blow, tankers are set adrift from moorings. Vessels at such times are simply helpless drifting whichever way the wind blows, abandoned to such fate for several days at a time.

As for land conditions, north Saghalien is still practically a primeval forest densely covered with various species of fir, larches and other trees. The difficulties encountered in establishing communications between Japan and the northern section of the island is thus beyond imagination.

A further disadvantage is the difficulty in securing raw materials necessary for company equipment. Visitors to Japanese oil fields marvel how the fields could have been furnished with light railway lines, roads for motor trucks, water system and electric light. A close inspection reveals the fact that all materials with which they are constructed were imported from Japan. Even gravel for cement construction work, bricks and American lumber are imported from Japan. The only raw materials which can be obtained on the scene are oil and wood for fuel. All the provisions, excepting some fish and milk, have to be imported from Japan. The oil fields in North Saghalien, therefore, are virtually supplied entirely with Japanese articles for sustenance. One can appreciate the great difficulties the company faces when one takes in to consideration that it requires from Y.500,000 to Y.,1,000,000 to clear away forests, construct roads and dwelling houses and equip them with electricity and water and so forth in order to prospect in one locality for oil.

The company has already invested twenty odd million yen for prospecting and experimental drilling, and it is not difficult for any one to see how a deficit of one or two million yen may result in the company's business activity under such circumstances. It is for this reason that a little investment in the enterprise is liable to have no tangible effect. An enterprise of this kind must be carried on either on a large scale, backed by vast capital, or on a small scale. Japan, however, is following a course which is neither the one or the other.

(Continued on page 83)

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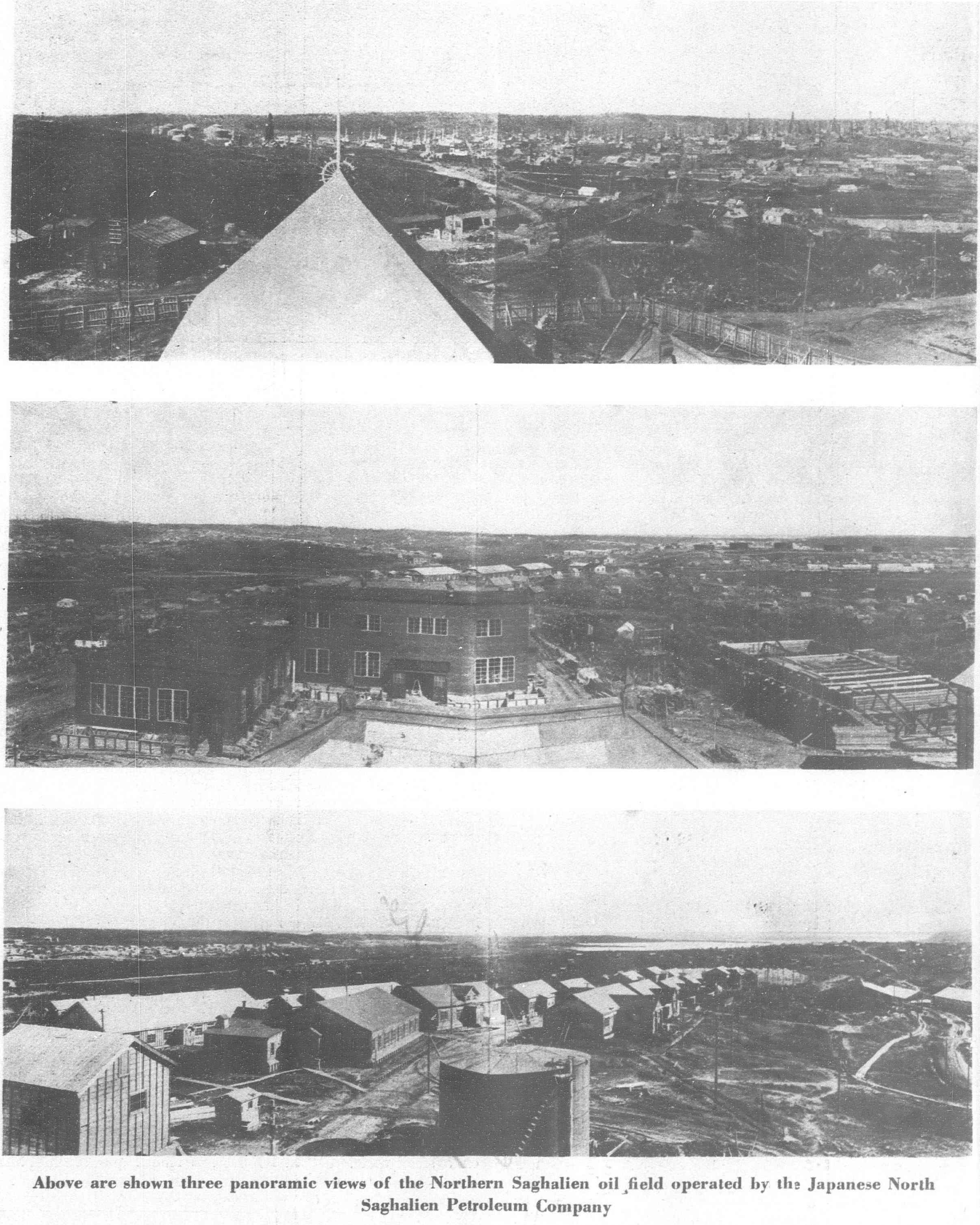
*Translated from the *Economic.*

THE JAPANESE OIL HOLDINGS IN NORTH SAGHALIEN



Above are shown three panoramic views of the Northern Saghalien oil field operated by the Japanese North Saghalien Petroleum Company

More Oil Refineries for Japan

National Control Detrimental to the Industry, Because Japan Has No Resources with Demand Increasing

By KOJIRO MATSUKATA, President of the Japan-Soviet Petroleum Co.

(Translation from the Chuo Koron)

A Japanese oil center showing tanks of the White Helmet Type and the Pillar Type with their intricate piping connection needed for purifying processes

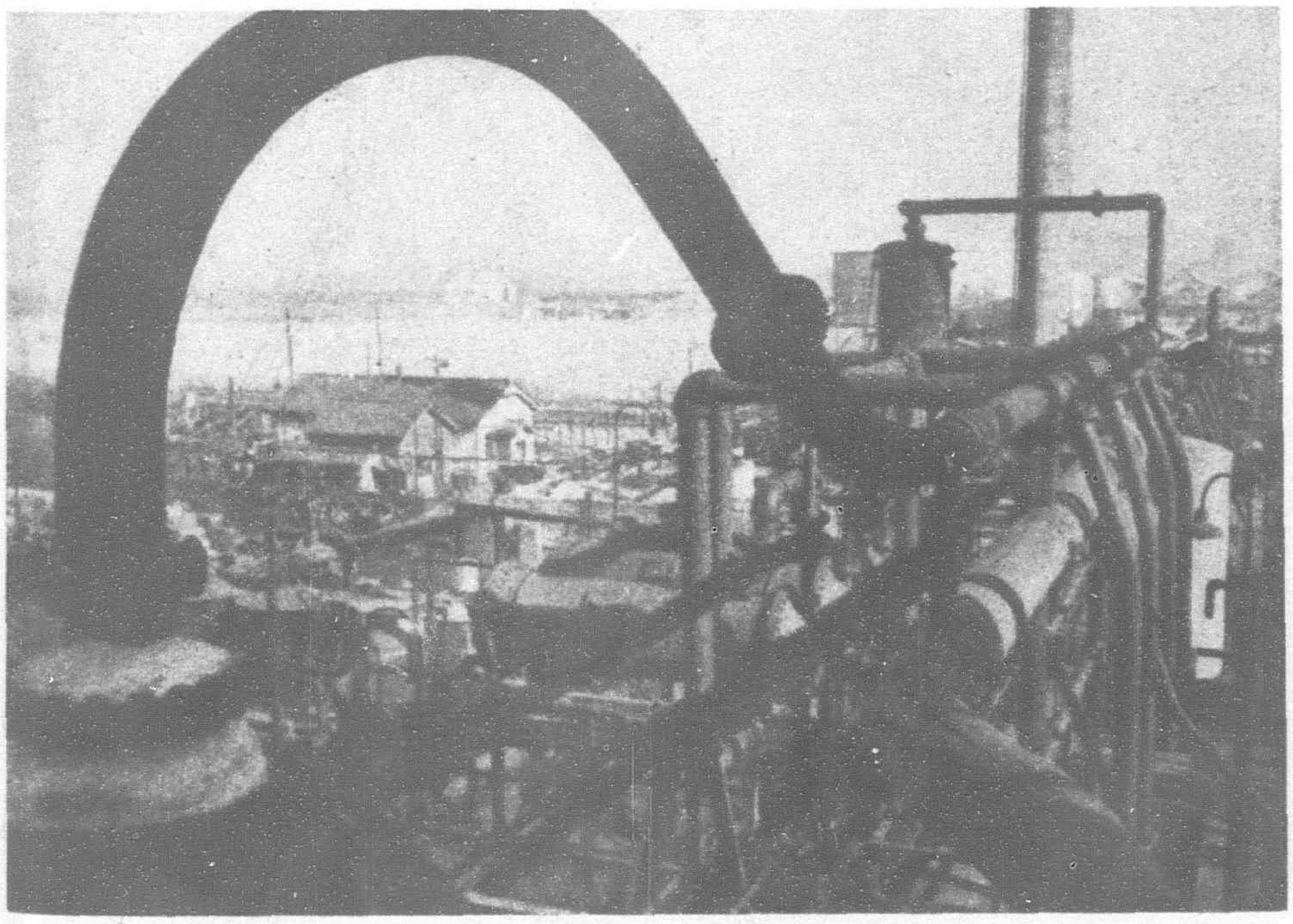
JAPAN's liquid fuel policy continues pitifully weak in comparison with the policies of other countries. The Ministry of Commerce and Industry created the Fuel Investigation Commission in 1926, and drafted a petroleum policy in 1930, which called for a thorough geological investigation of oil fields in the country, an investigation of oil resources abroad, the acquisition of concessions and an increase of subsidies for prospecting them. By that time, however, practically all promising oil field in the world were already in the hands of the United States and Great Britain.

Joint conference of the Ministries of Finance, Overseas Affairs, War, Navy, Commerce and Industry and the industrial and commercial leaders of the country was held in June, 1934, to discuss the problem. As the result of this conference, a bill for the enactment of petroleum control was approved by the Diet, and the law was put into force beginning July 1, 1934. One year and a half has elapsed, but we see nothing which convince us that the oil policy of Japan is definitely established. The situation is very serious from the viewpoint of national interest.

Japan must make all possible efforts to store liquid fuel to keep her going for at least one year. She must lay up as much petroleum as possible. A law which does not provide for this end is of no use, an obstacle to the realization of the aim for which it was enacted. Although the tendency of the age is toward economic control, it is questionable whether such control is applicable to industry under all conditions. If an infant industry is placed under control, its development would probably be checked. The petroleum industry in Japan has not attained that stage of development where control is necessary.

The reply of the Minister of Commerce and Industry to the question as to whether the control measure would not operate to discourage new enterprises, indicates that the oil industry in Japan is still in its infancy. The Minister stated that "the demand for oil fuel has been increasing by leaps and bounds. This increase will be still more accentuated in the future." The government admits that the industry is still infantile and predicts great developments in the future due to increasing consumption. When we take into consideration the vast consumption of oil by the army and navy, the demand may be considered as having no limit.

It is questionable whether the control of fuel oil by setting a limit on its supply or importation, particularly when we have no oil resources in the country and the demand for it is unlimited, is consistent with our petroleum policy. It is also apparent that control of an infant industry is bound to check its development, though it may serve to stablize a part of the industry. Moreover, while we are limiting importation of petroleum we may be left far behind other countries in this industry.



Showing equipment of a Japanese oil refining plant in which the crude product is broken down producing gasoline, kerosene, lubricating oil and heavy fuel oil, each separated into its particular division.

In view of the vast demand for petroleum in this country, this is no time to control the industry for stabilizing the fuel business. Control is futile even if its object is to prevent the oppression of foreign articles upon the home industry. When Soviet Russia exports raw materials, she avoids competition detrimental to the industrial development of the country with which she carries on trade. Should the importation of foreign oil into Japan be oppressive to our petroleum industry, we may prevent the consequent situation by increased import duties. Moreover, if sold at a fixed price, market stability will be easily secured, without the necessity of control of the business by the government.

When we so desperately require petroleum or petroleum resources, we should sacrifice everything which stands in our way of getting it. Viewed from this angle, Articles 1 and 2 of the oil law which operates against the storing of a great quantity of the fuel should be struck out in favor of Article 5. Japan has to make all possible efforts to store great amounts of fuel in constant reserve.

I have not yet touched upon the problems of developing petroleum resources in Japan, our concessions abroad and securing new fuel as substitutes. Some promising oil fields have been

Showing Helmet Type and Tower Type tanks and connections at a Japanese oil center

discovered in Akita prefecture in Japan and also in Formosa, but the total output would not be more than about 10 per cent of Japan's consumption. Nor can we anticipate that these fields will yield a much greater output in the near future. The development of oil fields requires an immense amount of money, and the enterprise is risky. A business firm, therefore, cannot afford to undertake lightly such prospecting. An appropriation of Y.3,000,000 a year as subsidy for prospecting oil fields can hardly be expected to bring about the result the government desires. Moreover, not a few geologists are of the opinion that the petroleum deposits in this country are very limited. We cannot expect much relief from within the country or the territories under Japan's control.

The oil field in North Saghalien operated by the North Saghalien Petroleum Company is more or less successful, but shipment of the output to Japan does not amount to more than 200,000 tons, of which half is bought from the Russian wells. If the Russians should refuse to sell after the beginning of this year, the Japanese output cannot be expected to be much more under the best condition when new wells under prospect are included. Two Japanese firms are prospecting a petroleum field in Borneo, but so far we have heard nothing about its future possibility.

Japanese quest of oil which has met with any degree of success is confined to North Saghalien. Development of new petroleum fields in foreign countries is controlled by foreign capital. When Japan was given a share in operating the oil field in Iraq as compensation for having participated in the defense of the Mediterranean during the World War, she did not take advantage of it. She has repeatedly missed the opportunity for developing oil fields in the Dutch East Indies. Those lost opportunities were due to a lack of correct appreciation of the importance of the petroleum industry on the part of the Japanese Government and industrialists.

There remain substitutes for petroleum, such as carbonization of coal, liquefaction of coal, shale oil distillation, synthetic oil, artificial oil, alcohol and others. The carbonization of coal and shale oil distillation have already been started. The annual output of shale oil at the Fushun coal mine is about 50,000 tons. A plan is under way for the extension of the plant. The carbonization of coal is being done at the factory of the Korean Nitrogenous Fertilizer Co., Eian, Korea, the Kusei Iron Works in Muroran, the Hokkaido and the Uchihoro factory of the Mitsubishi interests at South Saghalien.

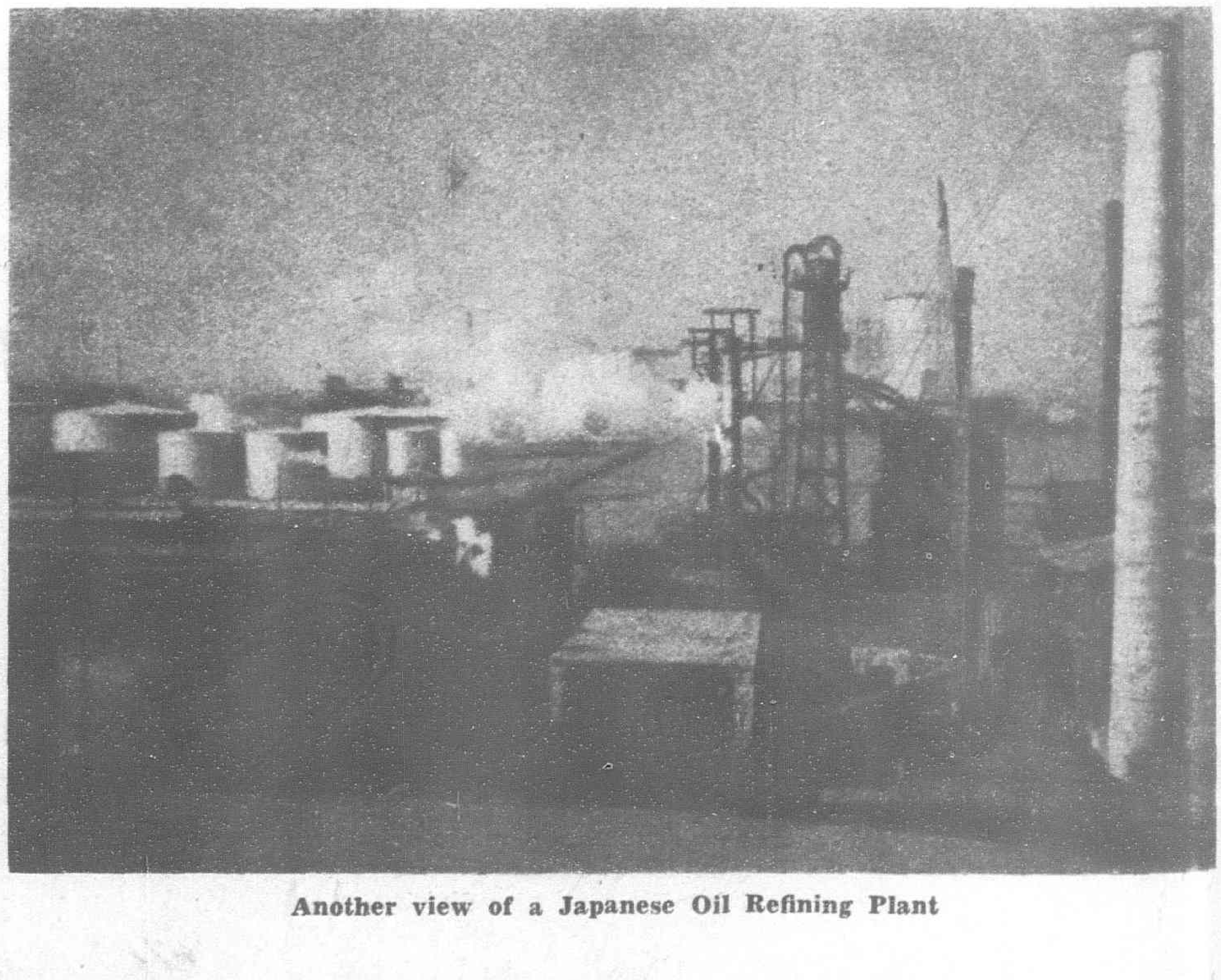
The rate of coal liquefaction may be raised to 90 per cent, but hydrogen to convert it into fuel is very expensive. The research laboratory attached to the Ministry of Commerce and Industry has been conducting experiments, but so far, it is rather difficult to place it on an industrial basis on account of the expensive hydrogen cost. Alcohol and other chemicals have been considered as substitutes for petroleum, but no concrete undertaking has been launched in this connection.

The carbonization of coal as an industry is regarded as promising, but it is difficult to extract 4,000,000 tons of petroleum out of 40,000,000 tons of anthracite and bituminous coal annually consumed by Japan. Only if faced by a petroleum famine would this method be justified.

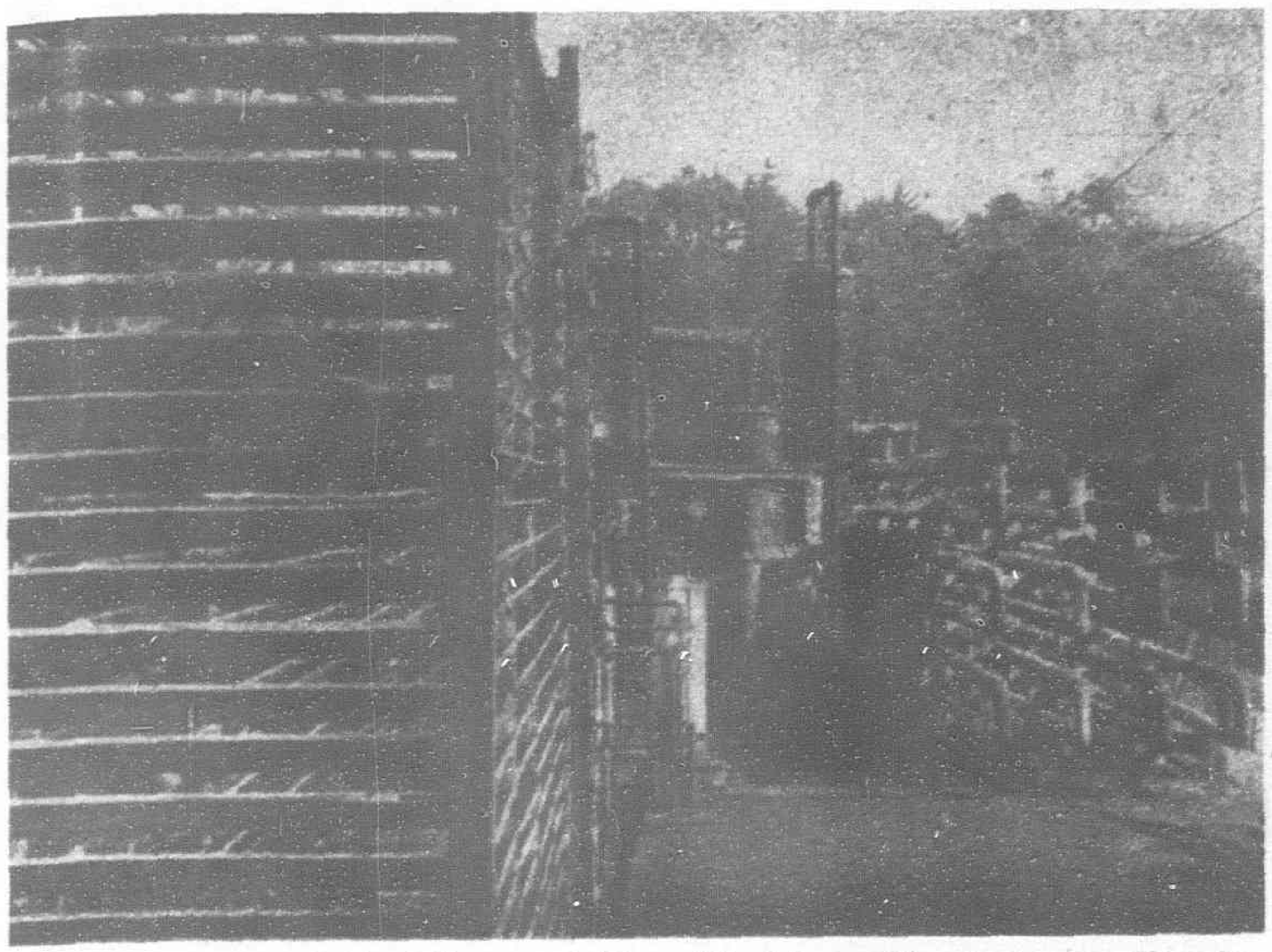
If Japan should promote the production of substitute fuels, the price of gasoline must be raised twice as high. At any rate, I am opposed to a plan of developing a substitute fuel by raising the price of gasoline because it will obstruct the development of motor-car manufacturing and transportation industries which have just begun to develop in this country. The production of substitute fuel must be achieved by national subsidies instead of raising the price of gasoline. The Ministry of Commerce and Industry realizes this and does not permit a serious raise in the price of the liquid fuel in spite of its anxiety to develop substitute fuel.

Under present financial conditions in Japan, it is practically impossible to appropriate a substantial fund for encouraging the production of a substitute fuel. It is for this reason that a plan to increase her oil reserve by a greater production of substitute oil is not feasible for the time being. It is, therefore, apparent that the importation of crude oil in great quantities and the establishment of as many refineries as necessary to handle it, is the only solution to the problem. Japan must import more raw oil and establish more refineries until her oil policy is definitely established by the development of oil fields at home, the acquisition of oil rights abroad or the development of substitute fuel by appropriating a large subsidy.

The importation of crude oil will not injure the oil industry in Japan. On the contrary, it will encourage export trade, providing the oil industry with nourishment in the true sense of the word for its development. Should a competition take place in the oil business stimulated by an excessive supply of oil, the parties



Another view of a Japanese Oil Refining Plant



Gasoline plant of the Nippon Sekiyu, Kashiwazaki where gasoline is refined out of the crude oil

concerned will restrain themselves guided by the experiences they have had since the fall of 1933, and avoid reckless competition. Moreover, the promoters of the oil industry in this country have invested their capital with the Matsukata Nisso Oil interests, with the result that they are now in a position to be able to regulate the situation themselves.

The practice of importing raw materials from abroad and exporting articles manufactured from them, is shown in the exportation of rayon, wheat flour, cotton thread and cotton cloth made by our manufacturing industries. Even iron which was regarded as a vital necessity for national existence, is now being exported. If the production of cotton cloth with 250,000 spindles early in the Meiji era (1868-1911) were controlled on the ground that it was sufficient to supply the national demand, the cotton industry would have never developed to 12,000,000 spindles. When we think of the oil industry in its present stage of development, and the measures for control of production, we cannot help feeling that the national petroleum policy is facing a crisis.

This is no time to limit the production of oil. On the contrary, we must import more raw oil and extend our refineries to enable Japan to store a sufficient amount of petroleum to meet the national demand for a period of at least one year. For the realization of this scheme, it is necessary to secure loans at a low rate of interest. This is a short cut to make private firms reserve the necessary amount of fuel for any emergency. As the storing of the liquid fuel is a part of military requirements, the raising of funds necessary for it is of a military nature. Moreover, the funds for this purpose will yield interest. From this consideration, the accommodation of loans for the realization of the scheme ought not be a difficult problem.

When we realize the importance of oil in time of emergency such as Italy now faces, we should reject any measure which may limit production. More production and more importation is the course Japan's oil industry should follow for its development. The oil law should be more simplified by effecting a revision so as to permit a greater import or crude oil. In other words, Japan should encourage the establishment of many foreign and Japanese refineries in the country, relinquishing the negative policy of securing a partial stability in the oil industry.

JAPANESE OIL WELLS IN NORTH SAGHALIEN

(Continued from page 79-80)

According to the provisions of the contract signed by Japan and the Soviet Union regarding the concession, the ratio in the number of workers employed by the company is three Russians to one Japanese and that of the higher grade of employes is equal in number. The Japanese are in positions to direct activities, but Japanese direction is regulated by the Soviet law. The Russian workers far outnumber the Japanese, and as they differ in language, customs and sentiment from Japanese workers, the company faces inconveniences at every turn.

In the face of such disadvantages, the Japanese interested in the enterprise strongly insist on the necessity of readjusting the contract with the U.S.S.R. It is apparent that the company cannot carry on its work with efficiency when its activities are handicapped at every turn by Soviet labor laws and other regulations. Further development of the Japanese enterprise is, therefore, impossible unless such disadvantageous conditions are removed once and for all.

Another difficulty is that the Japanese company is confronted with an oil trust initiated by the Soviet Government. It is a decided disadvantage for a Japanese private company with limited capital and regulated by Soviet law to compete with the Russian trust backed by unified Russian capital and labor. When Soviet workers arrived at Oha in 1928, the number of Russian wells was limited to 14, and the output of oil was no more than 26,000 tons a year. In 1931, Russia operated 39 wells, producing 96,000 tons a year. The number of wells was increased to 166 by 1934, and the figures for the output were raised to 242,000 tons. They have been producing about 650 tons of oil a day as against 450 tons of Japanese output.

Soviet Russia increased the number of oil wells by 45 last year. The output will be sent to the new refining plants established in Habarovsk, affording added opportunity for further development of her industry in North Saghalien, for when the plants are fully completed the oil wells at Oha will be called upon to produce twice as much oil to feed them. The Soviet oil activities, unlike the Japanese enterprise there, may secure any amount of labor and engineering talent for the development of the oil industry in the island.

It is reported that the Soviet authorities have already completed investigations in Oha and north Cha with a view to a further development of the oil industry with the result that they are reluctant to grant to the Japanese company any extension of the terms of contract for prospecting in the neighborhood of the Russian area. It may be that Soviet Russia will become more and more exclusive in her oil industry in North Saghalien on the ground of priority of right.

Under present circumstances the company has to take into serious consideration many things which were inconsequential in former days. What has been cited in the foregoing paragraphs are but a few examples showing the nature of Japanese oil enterprise in the northern section of Saghalien. The company is seriously handicapped in every respect. Japanese rights of concession are definitely established, but they are liable to be affected by every shift in political relations between the two countries.

It is impossible for a private company, operated on a business basis, to shoulder the responsibility for developing a right acquired for the Japanese people as a whole. A further development of Japanese oil industry in Northern Saghalien will increase the national revenue of Soviet Russia, for the greater the amount of Japanese output of oil, the greater the amount of Japanese payments to Russia. For the mutual benefit of both countries, it is necessary for the Japanese Government and people to open negotiations with Soviet Russia in an effort to remove fundamental obstructions lying in the way of the Japanese oil industry in northern Saghalien.

Japanese Shipbuilding—A World Record

Whaling Tender of 20,000 Tons to be Built in Five Months by the Kawasaki Dockyard Company of Kobe

SHIPBUILDING activities in Japan are now moving at top speed. According to latest figures, all shipyards have capacity work for the year and are refusing further orders.

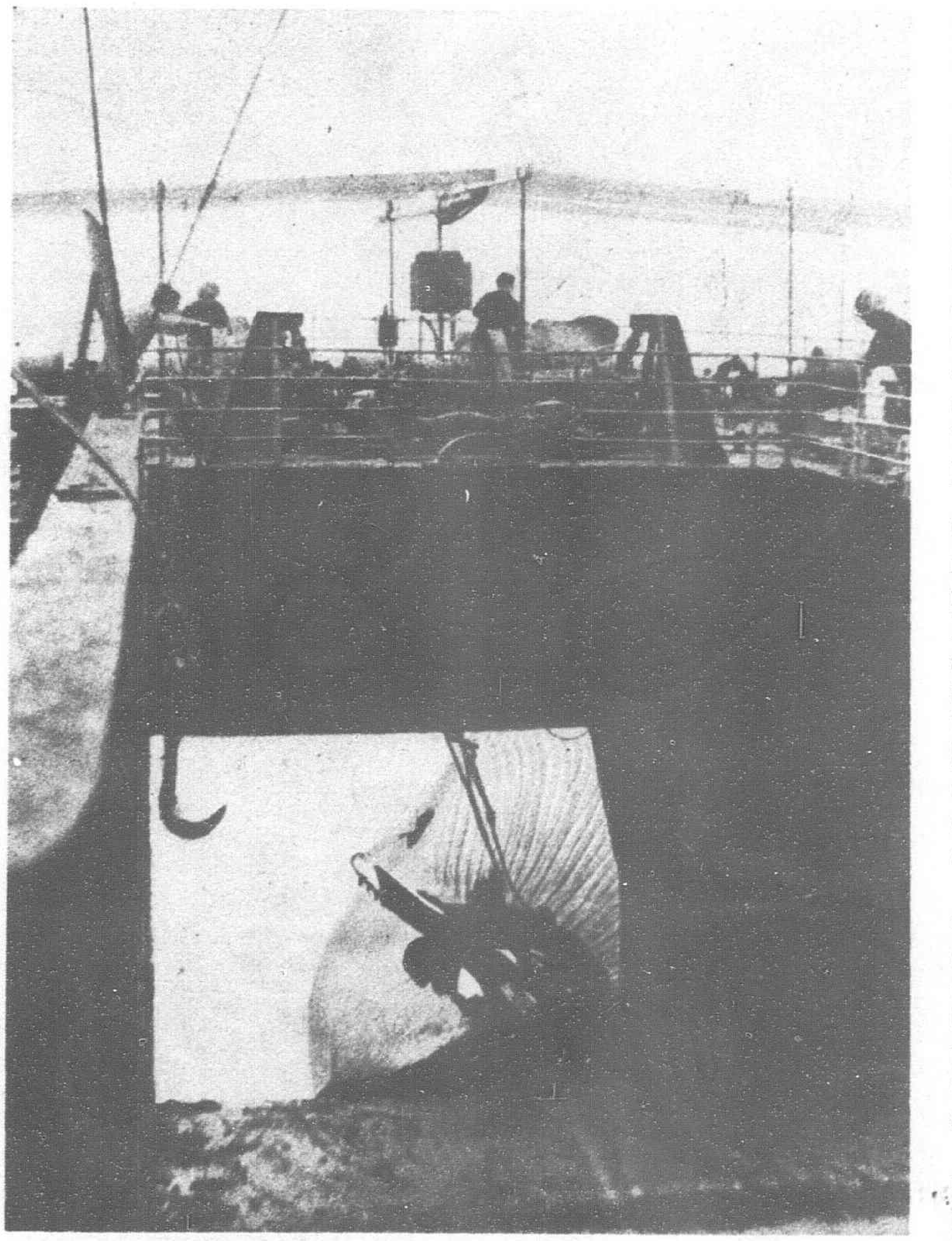
The present trend is said to be far more active than during the World War.

The Kawasaki shipyard reports that a whaler of 20,000 tons, said to be the largest in the world, is being built there for the Hayashikane Shoten. There are also under construction two tankers of 13,000 tons each for the Yamashita and the Iino Shoji lines, respectively; two freighters of 5,700 tons each for the Yamamoto Shoji and the Okazaki lines; six ships of 6,000 tons each for the Kokusai Steamship Co.; and others.

The Mitsubishi shipyard of Kobe is building one freighter of 6,150 tons for the Muko line; one 7,500 ton ship for the Dairen Kisen Kaisha; one passenger ship of 1,000 tons for the Awa Kyodo; one freighter of 2,550 tons for the Ube Cement Co.; one passenger ship of 1,800 tons for the O.S.K., to replace the *Midori Maru*; one passenger ship of 2,800 tons for the South China Steamship Co.; and 16 other small craft. The yard also has more than 10 ships in dock for repairs.

The Harima shipyard is building two deisel-engined passenger vessels of 9,000 tons each, one of which is to be launched next April, for the Kokusai Kisen Kaisha; one freighter of 7,000 tons for the Dairen Kisen Kaisha; one freighter for the Yamato line of Kobe; and others.

The above three builders are also undertaking considerable work for the government. The 9,000 workers of the Kawasaki, the 5,500 of the Mitsubishi, and the 3,000 of the Harima yards are said to be insufficient. Recently a call for more workmen was issued.



Hauling in the whale on a modern whaling tender

The Mitsui Tama dock, the Uraga dock, and other large docks throughout the country are said to be about filled to capacity with orders from such companies as the N.Y.K., O.S.K., K.Y.K., Dairen, Yamashita, Hiromi, Takachiho, Toyo, and Naigai steamship lines.

"Warship construction to the order of a certain Power" is one of the reasons for the present prosperity of the Japanese shipbuilding industry, according to the *Jiji Shimpo*. Another reason is that the Soviet Union is placing several large contracts for diesel-engined ships in connection with the transfer of the Chinese Eastern Railway to Manchoukuo. As mentioned elsewhere in this issue, these contracts call for twenty-three 4,000 ton freighters and various other small craft. As shipbuilding prospers, so does the machine and tool industry.

The Uraga Dockyard has orders on its books for 30 large and small vessels for domestic and foreign owners and has found that its present equipment is inadequate to the demands upon it. Among these orders is a 6,500 ton ship for the Nihon Steamship Company and a 4,000 ton ship for the Setsuyo Shosen Kaisha. Both are freighters. Accordingly, it has decided to reopen its reserve plant, which has been out of use since the termination of the World War. Preparations for installing cranes and other equipment have been started and the necessary machinery is being bought. The yard has three ways, the same as the plant now in use.

Other companies including the Mitsui Tama Yard, the Mitsubishi Heavy-Industries, Harima Dock, Kawasaki Dockyard and Osaka Iron Works, are overburdened with orders and are working at full capacity. Shipowners are placing orders for freighters in anticipation of more active business and the Government has under contemplation a third Y.1,500,000 subsidy arrangement for scrapping 50,000 of old bottoms and building 50,000 tons of new ships. Most of the shipowners are now said to be indifferent to the subsidy plan, because the terms are hard.

The Daido Marine Transport Company has decided to order four 10,000 ton diesel-engined freighters from Mitsubishi Heavy-Industries, two each for its subsidiaries, the Takachiho Shosen Kaisha and the Hiromi Trading Company. The Osaka Shosen Kaisha is placing an order for an 8,800 ton diesel-engined freighter with the same company.

The Daido Transport is making preparations to get a share in the Orient-New York freight service. Kawasaki Steamship is reported to be planning constructions of 12 diesel-engined freighters, presumably for the same service.

In addition to the above new constructions, to be completed during the course of this year are as follows:

Mitsui Tama Shipbuilding Yard: A 8,000 ton freighter for the Kyoritsu Steamship Company; two 7,500 ton diesel-engined ships for the Osaka Shosen Kaisha: a 6,500 ton ship for the Kuribayashi Shosen Kaisha.

Mitsubishi Heavy-Industries: A 8,750 ton turbine ship for the Kinkai Yusen Kaisha; a 6,500 ton turbine ship for the Nippon Yusen Kaisha and two 10,000 ton turbine ships also for the same company; also two 6,500 ton diesel-engined ships for the Kinkai Yusen Kaisha at its Yokohama dock.

A World Record

The purpose to build in the Kawasaki Dockyards at Kobe the 20,000 ton whaling tender mentioned above, constitutes an outstanding undertaking in shipbuilding, says the *Nichi Nichi*, for it is intended to build this vessel within the space of five months.

Granting the vessel is completed in five months, to meet requirements of her owner, the Kawasaki yard will have shattered all the shipbuilding records of the world, substantiating once again the fame of shipbuilding Japan.

The remarkable success achieved by the *Tonan Maru* (former *Antarctic Maru,* the 10,000-ton tender bought from Norway by the Japan Whaling Co., in the South Polar region last year, is responsible for the building of another tender, more than double her size.

She will be equal in size and equipment to the *Sir James Clark Ross* of Norway, the largest whaling tender in the world, and has been ordered by the Hayashikane Shoten, of Shimonoseki, noted deep sea fishing and whaling concern. The Ross was recently built at Barrow-in-Furness.

The builders of the *Ross*, upon being approached by the Hayashikane Shoten, turned down the proposition on the ground that a huge whaling tender of the *Ross* class would take at least 15 months to complete, whereas in order to be in time for the whaling season in the Antarctic region next year, the vessel must leave Japan ports by October 1, 1936, at the latest.

Vice-Admiral Yasusada Yoshioka, retired, plant superintendent of the Kawasaki yard, upon hearing that an English yard had rejected the Hayashikane proposition, considered the project from many angles and decided to accept the contract. He knew what a tender of that size would mean to the country in time of need—she could be converted into a tanker, a floating constructor, a minelayer, or an aircraft tender, on short notice. Besides, he realized that such rapid-fire construction would afford the yard operatives a rare opportunity for emergency training.

So, taking counsel with principal naval architects and veteran mechanics, he decided it would be possible to complete the task by the end of September. Accordingly he singled out some 500 mechanics for the particular project and asked for their determined efforts. They accepted the job with cheers. Not a few engineers volunteered to stay at the yard night and day.

The Kawasaki management rang up London by international radio-phone asking that plans and specifications be dispatched by airmail, while a staff engineer left for Europe via the trans-Siberian route. He will travel airwise from Moscow to London, where he will purchase such parts as English firms can supply to better advantage.

The keel for this vessel will probably be laid about the middle of April, 1936, with the launching scheduled for August 1, 1936.

The Hayashikane Shoten intends to build a sister ship or two, providing the first venture in the Antarctic in the coming season measures up to expectations.

Below are the particulars of the vessel:

Length overall, 550 feet; greatest beam, 75 feet; depth, 50 feet; speed, diesel engined, 14 knots; crew, 360 men. On the boat deck will be tucked away eight 250 ton "catcher-boats," each loaded with whaling guns.

The vessel is a huge floating factory, in that she will be amply equipped to cut up all whales caught and to extract their oil. She is designed to carry up to 22,000 tons of whale oil. The construction cost will be about Y.8,000,000.

"Barring unforeseen obstacles," says Superintendent Yoshioka, "we ought to finish the job within the estimated time, in which event we shall have marked a new epoch in the annals of the world's shipbuilding. The fact that we can use for the most part domestic materials is highly pleasing."

Another notable shipbuilding enterprise at the Kawasaki Dockyards at Kobe will be the construction of another huge whaling vessel. The Tosa Whaling Company of Shikoku has applied to the Ministry of Agriculture and Forestry for permission to whale in Kamchatka waters. Simultaneously, it has placed an order with the Kawasaki Dockyard Company for a 20,000 ton diesel-engined whaler with a speed of 13 knots and three auxiliary vessels. The full order is for Y.4,600,000 the *Jiji Shimpo* reports.

The Government has been restricting whalers along the coast of Japan, where only 25 vessels are allowed to operate. Japan's whaling industry is now controled by the Nippon Whaling Company and the Tosa Whaling Company, which are great rivals.

In Kamchatka at present there are frequent conflicts of interest between the Japanese fishermen in the open sea and the coast fishermen of the Soviet Union. The Ministry of Agriculture and Forestry has been studying this problem for several years. The permit to fish near Bering Strait is believed to be due to the policy to avoid friction as much as possible.

The Ministry has rejected the application of a private shipping concern, Arai Shoten, to do open sea crab fishing off the Kamchatka coast on the ground that that industry is under the control of the Consolidated Floating Cannery Company. This is the first attempt made so far to test the monopoly obtained by that concern by merger.

POOTUNG WATER SUPPLY

A MODERN water system for Pootung will be in operation soon. Work has been in progress on the water system for some time.

Due to the increase of Pootung's population and the number of factories during the past few years, the City Ferry Service was inaugurated; and the building of an up-to-date waterworks is now included in the city program of Pootung's development.

Realizing that the demand for an adequate pure water supply is becoming more urgent in Pootung, The City Government of Greater Shanghai has empowered the Greater Shanghai City Trust to undertake the financing and building of this great enterprise in spite of the heavy expenses incurred.

The City Trust, realizing the importance and the great responsibility bestowed upon them, have studied the question carefully and worked out the scheme with extreme caution. It is understood that in carrying out this project, heavy expenditures would be required and the incomes derived will not be great. The narrow stretches of land and the unsystematic layout of roads in Pootung makes the laying down of pipes difficult. From the financial point of view the commercial possibilities of the project are not attractive to the Administration. But aside from the vast cost and immense difficulties involved, such development is justified from the best interests of the public. The City Trust, therefore, determines to tackle the problem energetically by employing the most scientific methods in utilizing man power and using up-to-date machinery to offset the financial handicap. The staff members of the City Trust and the engineers of the City Ferry are giving their services free to make the scheme a success.

Messrs. C. Luthy & Company was engaged to carry out the designing, and the building contract of the works was awarded to Cheng Tai & Company. Construction has begun and complete machinery equipment from abroad is continually arriving at the site. It is expected that water supply will be available to the public next May.

The important points in the works are to be noted as follows:

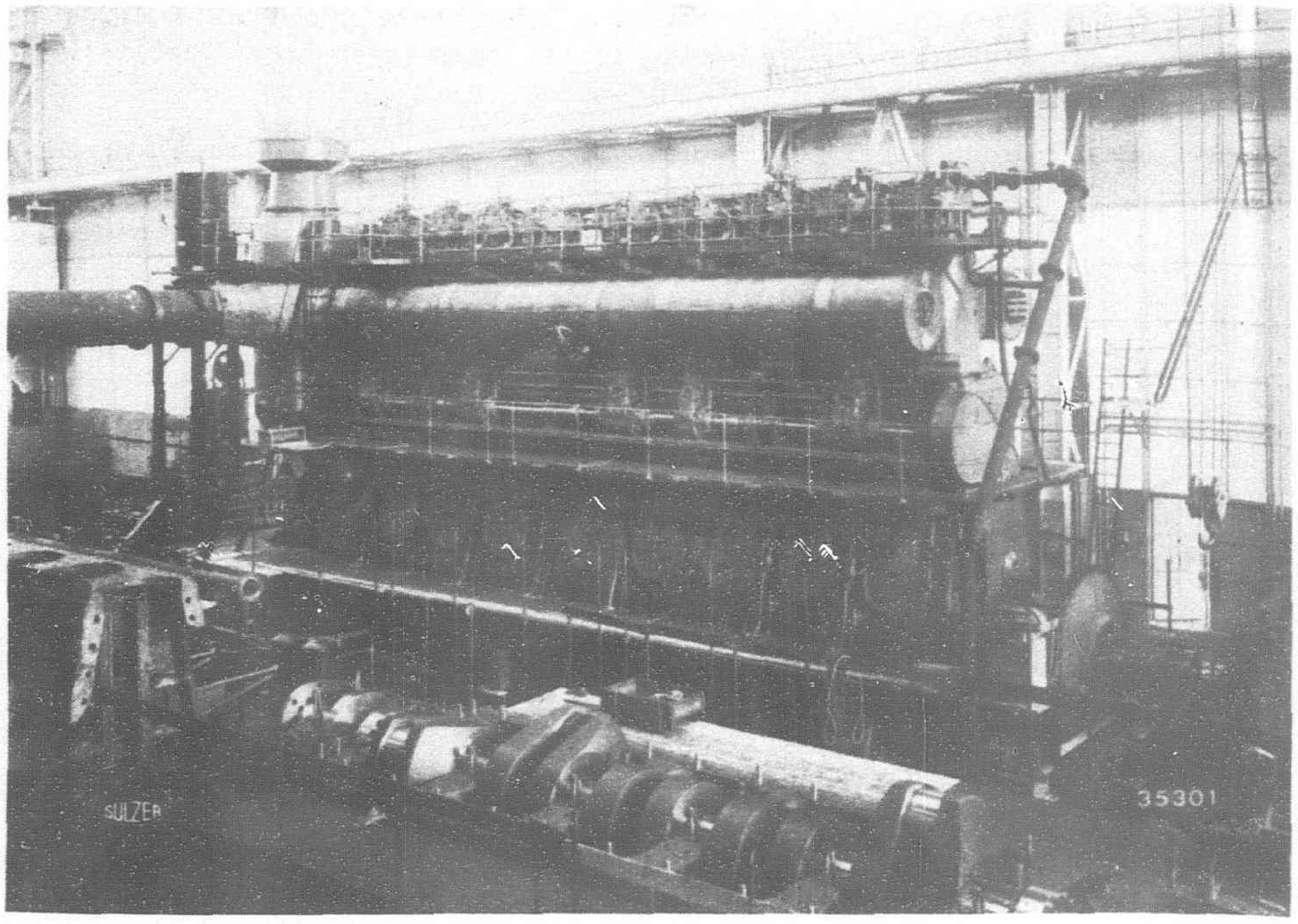
(1) *The water supply area*: The first supply section starts from the South of Tung Da Doo to the North of Shanghai and Hongkew Pootung Wharf, and the second supply section begins from the South of Chang Ka Pang to the North of Yang Ching Harbor.

(2) *The reservoir*: The main source of water supply will be in the Whangpoo River at the junction of Yu Lung Wharf opposite Rue du Consulat, French Concession. This site was selected besides being the center of Pootung because of the depth of the river which will supply large quantity of pure water free from accumulated of unhealthy matters. The river on the southern portion of Pootung is comparatively shallow and the ebbing of the tide besets the water there with muddy particles; and on the northern side the high tide gives the water an effect of sodium chloride, therefore the above choice is the best under the conditions there.

(3) *Machinery and pipes*: All the pumps are centrifugal and electrically driven with the highest mechanical efficiency. The pipes are made of seamless steel of highest tensile strength in order to effect the minimum leakage. All valves and fittings are of modern design supplied by Messrs. Bopp & Reuther, Mannheim, Germany. More than one hundred hydrants will be installed on places whenever necessary. The initial cost of the whole plant amounts to about $700,000 and the area of the works covers about eight mow.

(4) *The natural quality of the water*: The quality of the water will be carefully observed. Up-to-date plants are used for purifying the water which will be brought up to required standard and special attention will be given to chemical analysis, and the laboratory tests will be supervised by qualified chemist.

Sulzer Engines Built for Blue Star Line Motor Cargo Boat



Sulzer Single-acting, Two-cycle Marine Engine, 6,000 b.h.p., 120 r.p.m.

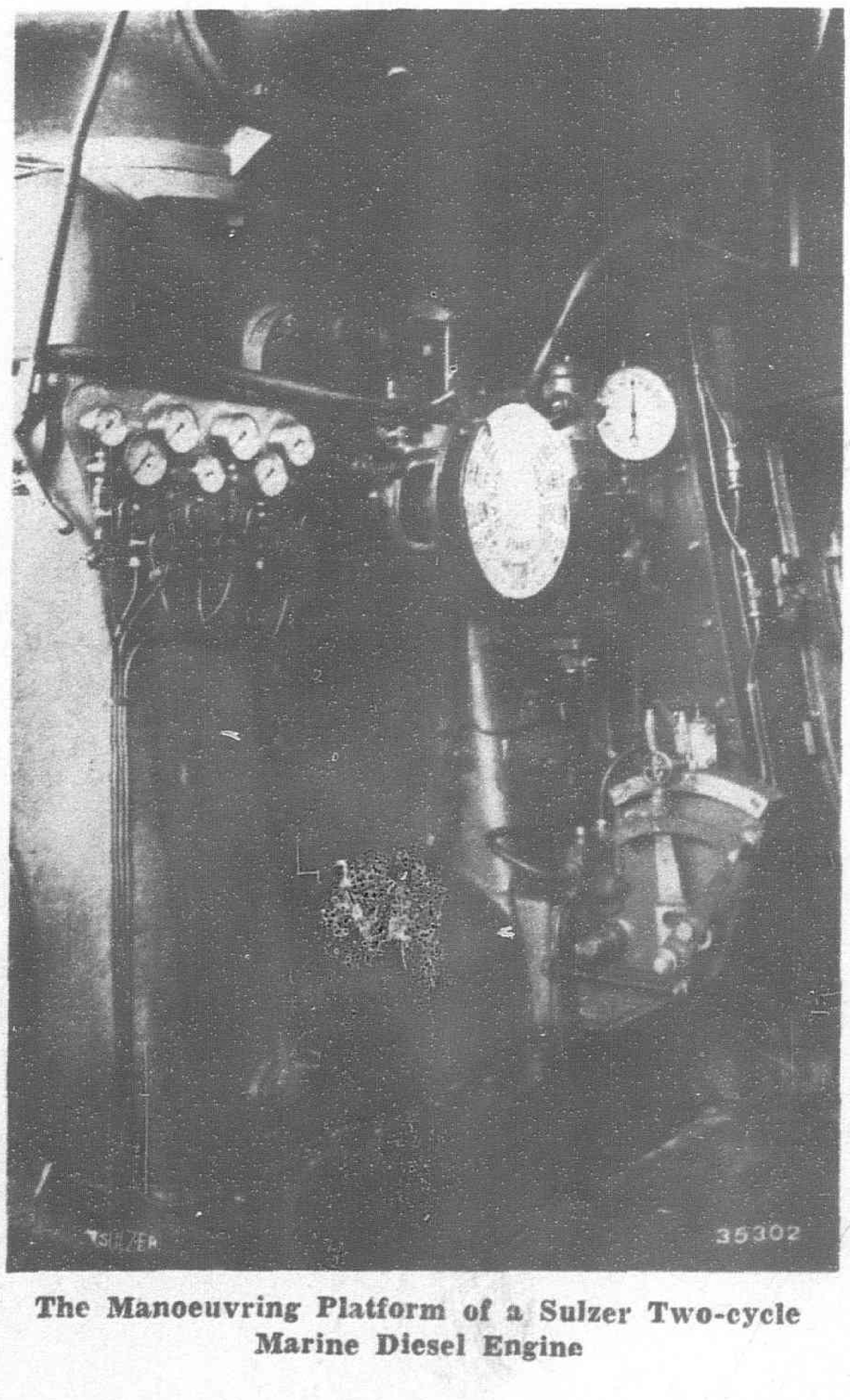
In September two single-acting two-cycle engines were tried out on the test bed of the Sulzer works in Winterthur, each developing 6,000 b.h.p. at 120 r.p.m. They are intended for propelling a cargo boat of 13,000 tons dead weight, 516-ft. long, built by Messrs. Camell Laird & Co., Birkenhead, for the Blue Star Line. The vessel will be put in service between England and New Zealand and Australia and will serve principally for transporting food stuffs (meat, poultry, eggs, etc.). Each of the main engines has nine cylinders of 720 mm. bore and 1,250 mm. stroke. The construction is identical with that of the eight-cylinder Sulzer two-cycle engines for the motorships *Dorset* and *Durham* of the New Zealand Steamship Co., with which the extremely favorable fuel consumption of about 0.33 lb./b.h.p.-hour was obtained. Also the three auxiliary engines for the new Blue Star Line vessel have been built by Sulzer Brothers. They are six-cylinder four-cycle engines, each developing 500 b.h.p. at 375 r.p.m. and are of the Sulzer compound admission type.

Main Engines

In order to obtain a good connection between the engine and the foundation, the side walls of the bedplate are extended downwards. As in all Sulzer marine Diesel engines, the frame is composed of columns, which are bolted to each other at the side, and on which the cylinders are separately mounted. Particular care has been given to the cooling of the cylinder liners, which are surrounded by the cylinder jackets. For this purpose they are provided at the top with special guides, giving the circulating cooling-water a particular direction and speed, so that the best possible cooling effect is obtained. Main and auxiliary engines are cooled with fresh water. In the combustion space at the top, the cylinder liners are protected by rings made of special heat-resisting material. The cylinder covers are in two parts, an inner part which comes in contact with the combustion gases and is therefore carefully cooled, and an outer part which supports the first part against the pressure of the combustion gases. The driving gear, as in all Sulzer engines of this output, has a crosshead with double slippers.

The cylinders are scavenged according to the well known Sulzer method with two rows of ports. The air is supplied by a double-acting tandem pump, fitted at the end of the engine and direct driven by it. In consequence of the large quantity of scavenging air which can flow into the cylinders in the time available, the scavenging air pressure is very low and the efficiency of the engine is consequently good.

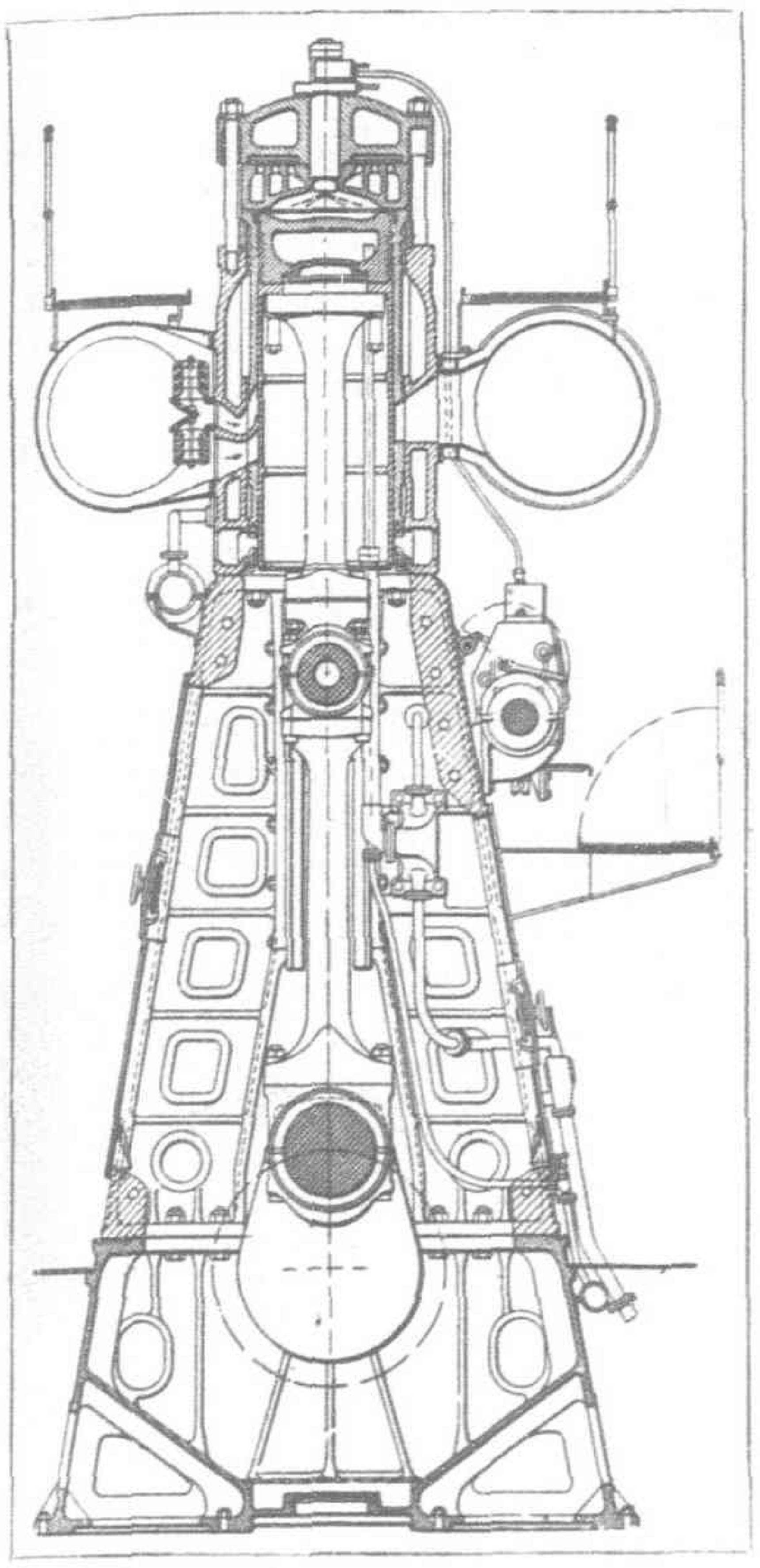
A striking feature is the large diameter of the horizontal camshaft. It is driven from the main shaft through toothed wheels and lies at about half the height of the engine. It has been given its large dimensions out of consideration for the forces exerted by the fuel pumps which the shaft has to drive, since these forces must not bend the shaft to the slightest degree, otherwise the accuracy with which the fuel is injected would be affected. Each cylinder has its own fuel pump, and two such pumps are brought together into one block. The fuel is injected according to the principle of constant cut-off, i.e., the delivery of the fuel by the pump plunger always stops at the same point with respect to the position of the crank of the working cylinder, and is independent of the load. For this reason the quantity of fuel injected is regulated by altering the beginning of the injection. A regulating valve, which is given a movement contrary to the pump plunger by means of a lever gear, regulates the beginning of the injection at the moment at which it is closed. This moment of closing can be adjusted from the manoeuvring platform. According to this principle the fuel injection stops only when the pump drive has passed the nose of the fuel cam and it gives very advantageous conditions with respect to the duration of injection and to the distribution of the fuel in the combustion chamber. The system has also the great advantage that separate fuel cams are not required as formerly for running ahead and running astern. When reversing, in consequence of the symmetry of the arrangement, the direction of rotation of the engine is determined solely by suitable control of the starting air. It is therefore not necessary to reverse the fuel pumps or their drive when reversing the engine.



The Manoeuvring Platform of a Sulzer Two-cycle Marine Diesel Engine

Contrary to the arrangement adopted in the motorships *Dorset* and *Durham* mentioned above, the manoeuvring platform in these engines is arranged at the side near the scavenging pump. In this way a certain amount is saved in length, as shown in the accompanying photograph.

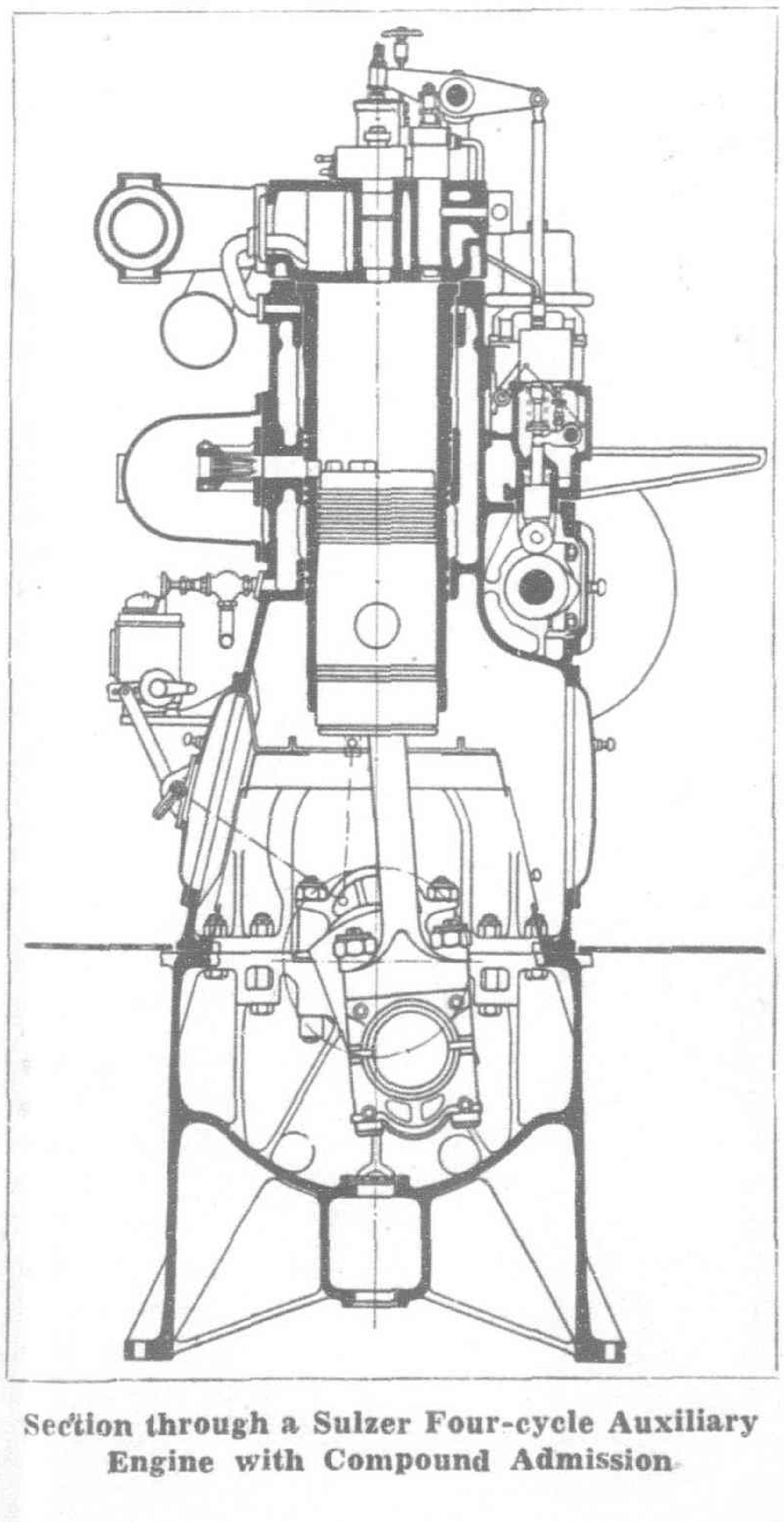
By adopting direct injection, the attendance is much simplified and the manoeuvring operations are made solely by means of two levers, one for fuel (left) and the other for starting air (right). The fuel lever acts through rods on eccentrics in the fuel pumps, which set the pivots of the overflow-valves higher or lower and thus cause them to close later or sooner, i.e., to regulate the quantity of fuel. On the same system of rods a servomotor works, which is operated from the general forced



Section through a Sulzer Two-cycle Marine Engine, 9,000 b.h.p., 12 r.p.m.

lubricating system ; as long as it is not under oil pressure, it prevents the fuel pumps delivering, even when the hand regulation at the manoeuvring platform is set to delivery. In the oil pressure piping leading to the servomotor there are fitted behind each other a safety governor (direct driven from the end of the crankshaft), and also an apparatus for preventing rotation in the wrong direction when reversing. When one of these devices comes into action, the oil pressure below the above-mentioned servomotor piston is released, the piston falls and the fuel rods are brought back into the no delivery piston. In addition to that, a further apparatus is provided at the end of the engine in order to stop it should the cooling-water supply or the lubricating oil circulation fail. By means of all these devices the reliability of the engine is increased, since it is protected on the one hand against damage caused by lack of water or lubricating oil and on the other hand against racing or errors in manoeuvring. At the manoeuvring stand are provided the usual indicating instruments for checking the oil, air and water pressures, the direction of rotation and the number of revolutions of the engine.

A noteworthy feature on this engine is the starting gear. Six of the nine working cylinders are fitted with starting valves, which are located in the cylinder covers and operated pneumatically. The control air is controlled by pre-starting valves, which are brought together in two blocks each containing three units. These valves are operated through cams, which are driven from the camshaft and can be moved axially. When the direction of the rotation of the engine is changed, the cams are moved in such a way that the ahead or astern cams come into operation. This movement of the cams is connected to the engine-room telegraph through a servomotor. If, for example, the engineer receives from the bridge the order to reverse from ahead to astern, he confirms this order by setting the engine-room telegraph to indicate the order has been received, and in making this movement he simultaneously stops the engine and reverses it. After that, it is only necessary for him to admit the starting air to set the engine rotating again. An indicating device, which is connected to the reversing gear, shows the engineer before the engine is again started in what direction it will rotate. In order that the engine cannot be started with the barring engine in its operating position, a suitable blocking is provided, which makes it impossible to admit starting air to the engine before the flywheel is free.

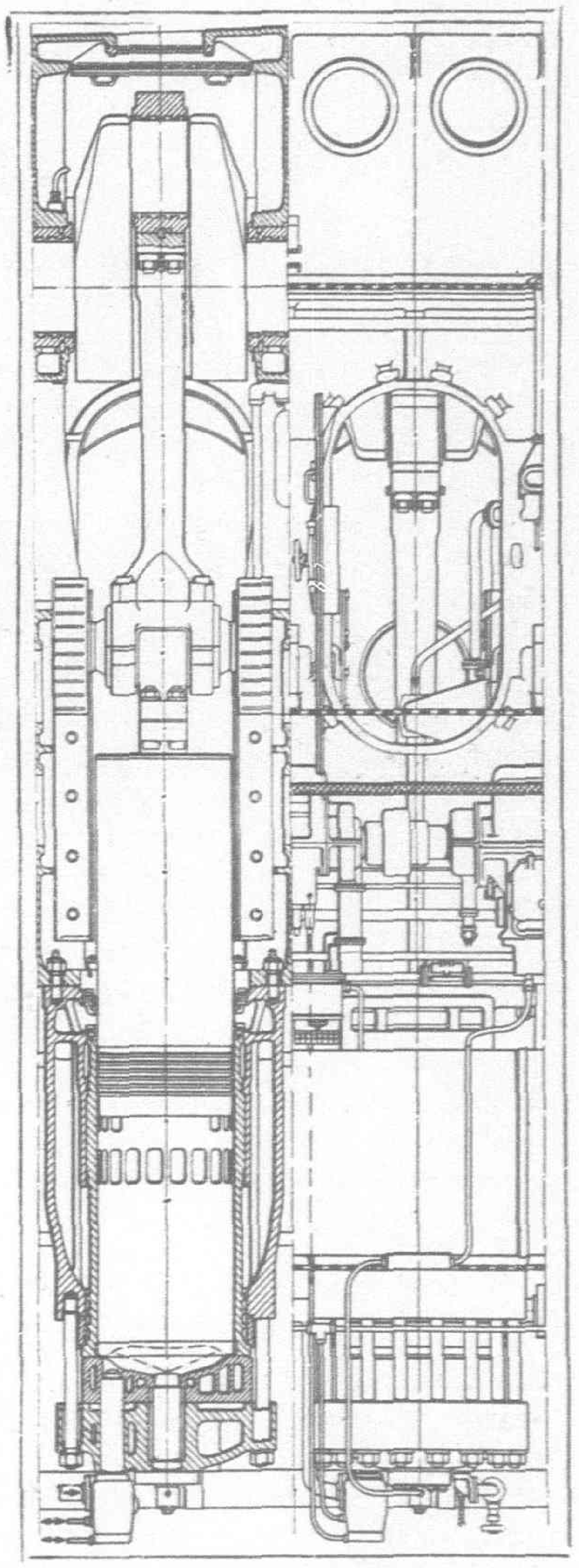


Section through a Sulzer Four-cycle Auxiliary Engine with Compound Admission

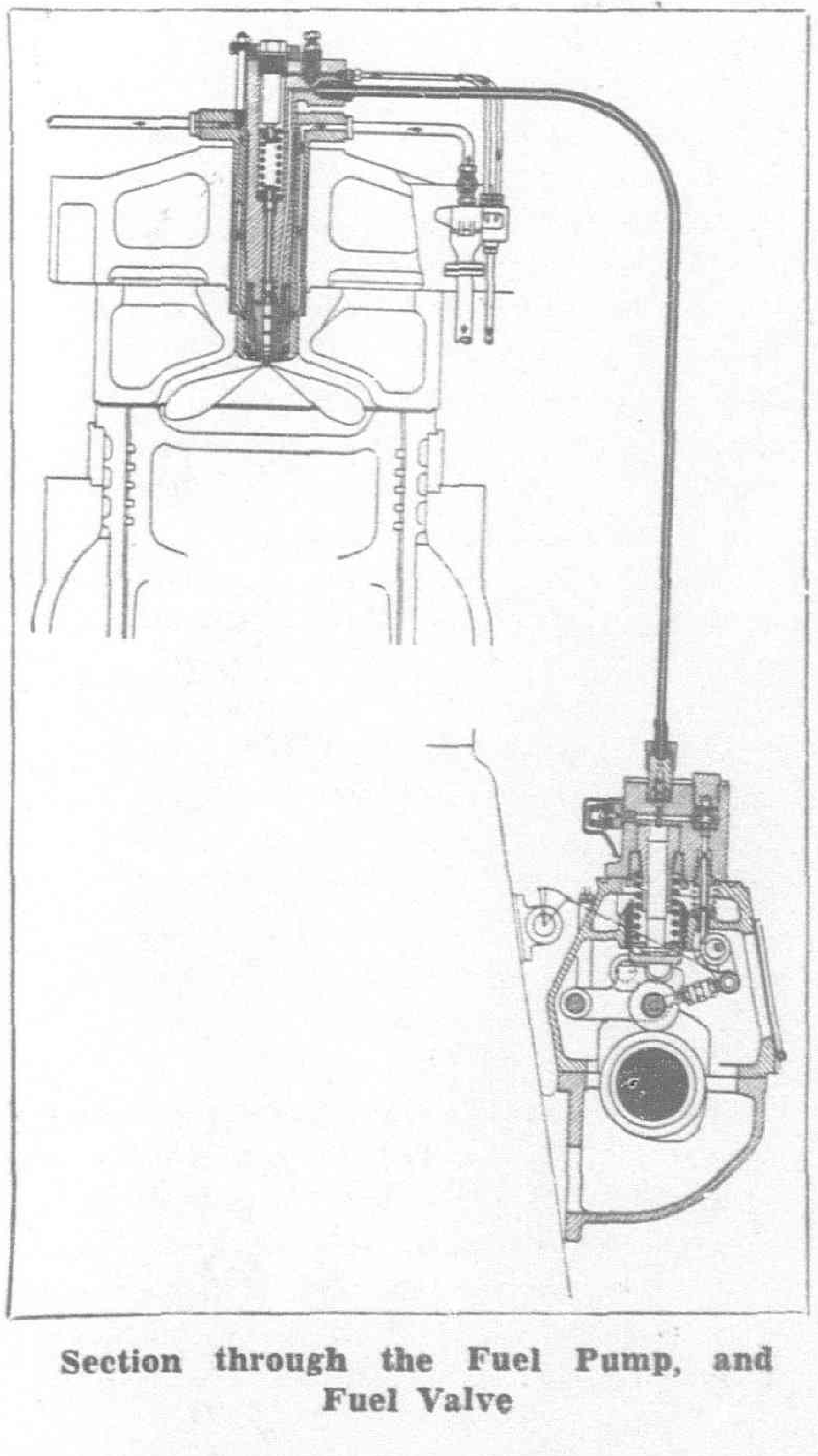
Auxiliary Engines

As auxiliary engines, three Sulzer four-cycle Diesel engines, each developing 500 b.h.p. at 375 r.p.m., are delivered. Each engine has six cylinders of 290 mm. bore and 440 mm. stroke and is direct coupled to a General Electric generator. The working cylinders are in one block, which reaches down to the bedplate. The bedplate is also in one piece and has the side walls brought down to facilitate fixing to the foundations. In addition the bedplate has lugs cast on at one end, which serve for connecting it to the dynamo frame. Each engine is provided with Sulzer compound admission, which allows the specific output to be increased by introducing an extra quantity of fresh air into the working cylinders. This system, which has been applied to a large number of Sulzer four-cycle Diesel engines, comprises an additional air pump, which is direct driven from the engine and delivers air at a pressure of about 8½ lb./sq. in. into a receiver running alongside the cylinder block. From here the air passes through non-return valves and ports in the lower part of the cylinder liner, and enters the cylinder as soon as the ports are uncovered by the piston. The working cycle in these engines is accordingly as follows :

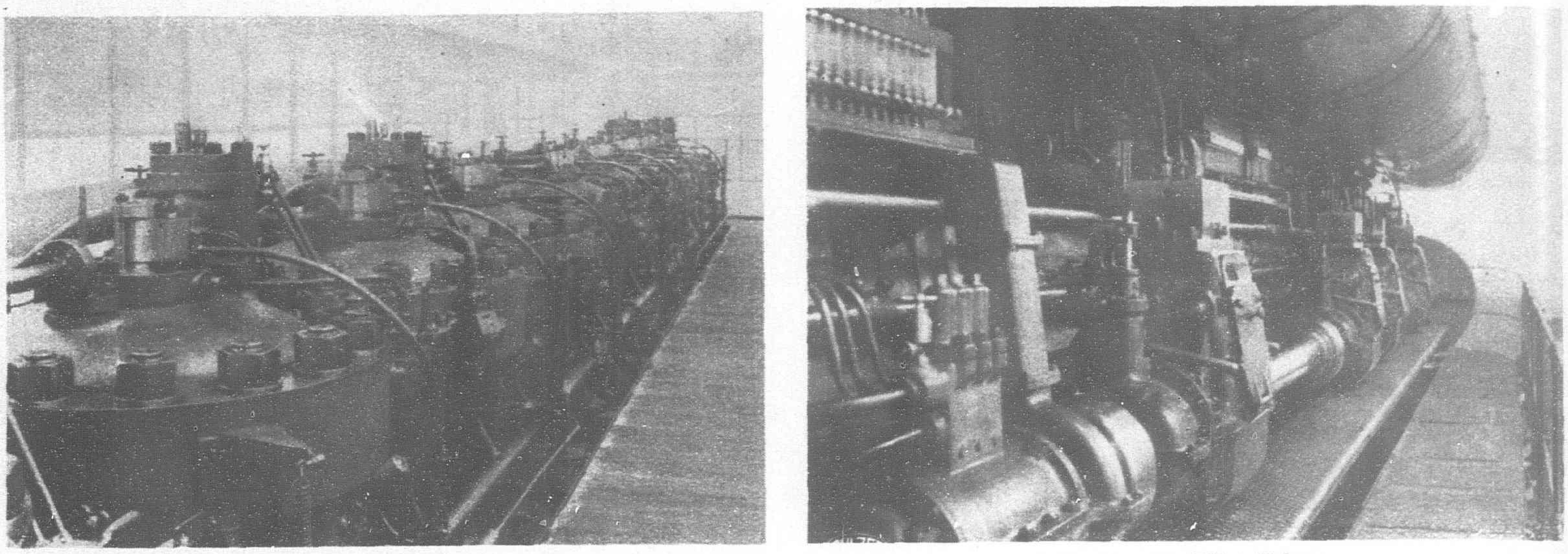
(1) Air drawn in through normal suction valves,



Section through a Sulzer Two-cycle Marine Engine, 6,000 b.h.p., 120 r.p.m.



Section through the Fuel Pump, and Fuel Valve



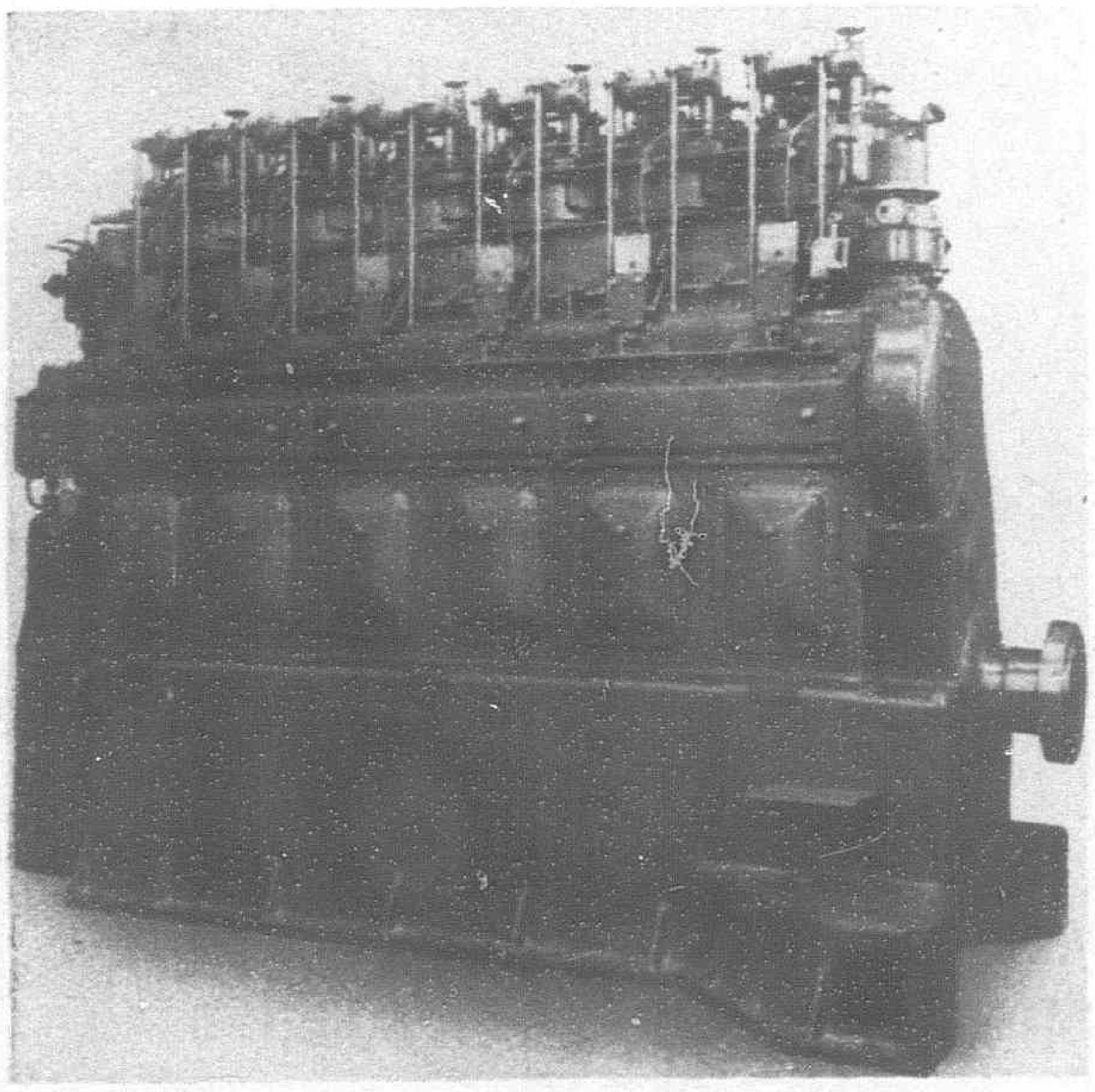
Left—The Cylinder Tops; Right—View along Camshaft; Fuel Pumps and Starting Air Pilot Valves

which, however, close before the piston reaches the lower dead centre and uncovers the ports. This causes a slight depression in the cylinder, and at the moment when the piston uncovers the port the additional air flows into the cylinder. The energy of flow of the additional air is caused by the pressure in the receiver mentioned above, and also by the depression in the cylinder, the quantity of additional air admitted is 20-25 per cent of the normal quantity.

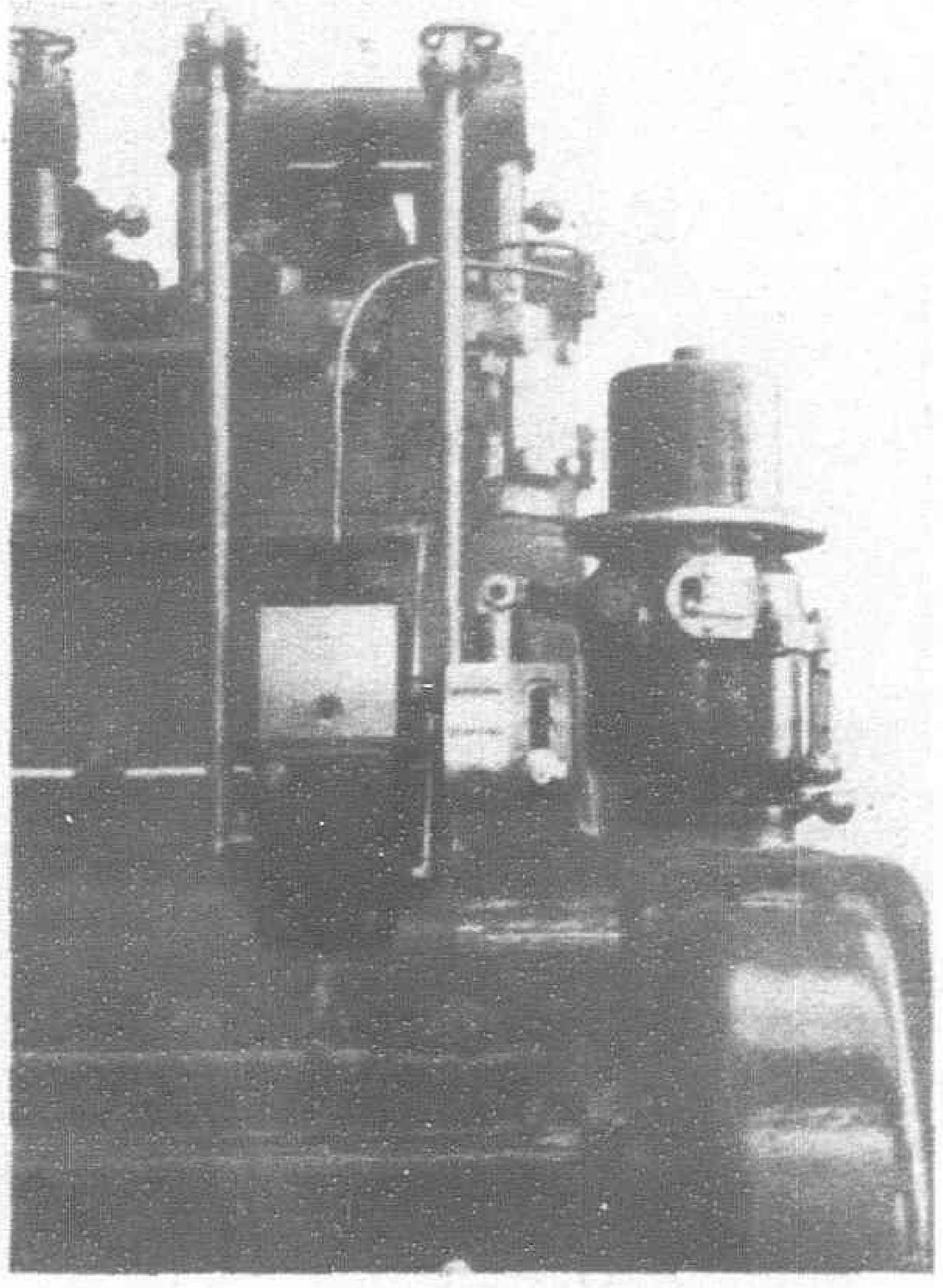
(2) Compression and ignition.

(3) Expansion (working stroke). Near the lower dead center the exhaust valves are opened and the products of combustion escape through the exhaust pipe. When the pressure has fallen sufficiently, the ports are uncovered by the piston and for the second time during the cycle fresh air flows into the cylinder and remains lying above the piston.

(4) Expulsion. The rising piston drives the expanded gases out through the exhaust valve, and at the end of the stroke the cushion of fresh air over the piston fills the compression space, so that, in contrast to the usual Diesel cycle, the clearance is filled with fresh air at the end of the expulsion stroke.



Sulzer Four-cycle Auxiliary Engine with Compound Admission 500 b.h.p., 375 r.p.m.



The Controls of a Sulzer Four-cycle Auxiliary Engine with Compound Admission 500 b.h.p., 375 r.p.m.

Each cylinder is provided with a fuel pump of special construction, which is driven from a horizontal camshaft. The camshaft is located in the frame, but it is supported in such a way that it is easily accessible after the covering doors have been removed. This construction has the advantage of ensuring that the camshaft is always well lubricated. The fuel pumps are controlled by a ball governor, which regulates the quantity of fuel delivered according to the load on the engine.

Each cylinder is also provided with a starting valve, so that the engines can be started with the crankshaft in any position. The starting valves are located in the cylinder covers and are pneumatically controlled: they are operated from the control valve block located at the front end of the camshaft. The engine is started by putting a special lever (near the governor) into the starting position, whereby the quantity delivered by the fuel pumps is somewhat reduced. Then the starting control valve, which is located beside the above-mentioned valve block, is opened by means of a small lever and the engine starts.

The fuel consumption, measured during the trials, is 0.335 lb./b.h.p.-hour for the main engines and 0.385 lb./b.h.p.-hour for the auxiliary engines, both figures referring to full load at normal speed.

RESERVOIRS FOR DAIREN

Construction of three great reservoirs on the Dairen-Port Arthur highway commenced to be completed within next eight years. A water supply sufficient for a million inhabitants will be available when the new reservoirs are operating, in addition to the three existing ones.

The new reservoirs will be located at Tamanoura, Sekimonshi and Koudaegawa. The first named will have a water surface of 2,480,000 square meters and depths of 17 to 18 meters. The Koudaegawa reservoir will have an average depth of 15 meters and a urface of 1,360,000 square meters, and the Sekimonshi place will have a mean depth of 26 meters and a surface of 400,000 square meters.

The selected sites have been already acquired by the municipality, and a hamlet of about 200 houses at Sekimonshi is being moved.

The shores of the new reservoirs are expected to develop into favorite picnic sites and beauty spots. They are all located near to the motor highway, accessible by buses, with broad panoramas and fine air. Approximately Y.500,000 were paid to various land owners for the sites to be converted into deep reservoirs.

The Express Cargo Motor Liner "Awobasan Maru"

For the Orient-New York Service of the Mitsui Line. Equipped with the Latest 7,000 b.h.p. Mitsui-B. & W. Double-Acting Two-Cycle Airless-Injection Diesel Engine

By Y. TAJI

THE single-screw express cargo motorship *Awobasan Maru* has been constructed and engined by the Tama Works of the Mitsui Bussan Kaisha, Ltd., to the order of the same Company's shipping department.

The vessel is of the most superior design, and has been built under the provisions of the Ship Improvement Facilities Act, and in accordance with the requirements of a specification of the highest class for the Orient-New York service.

The principal dimensions and other important characteristics of the design are as follows :—

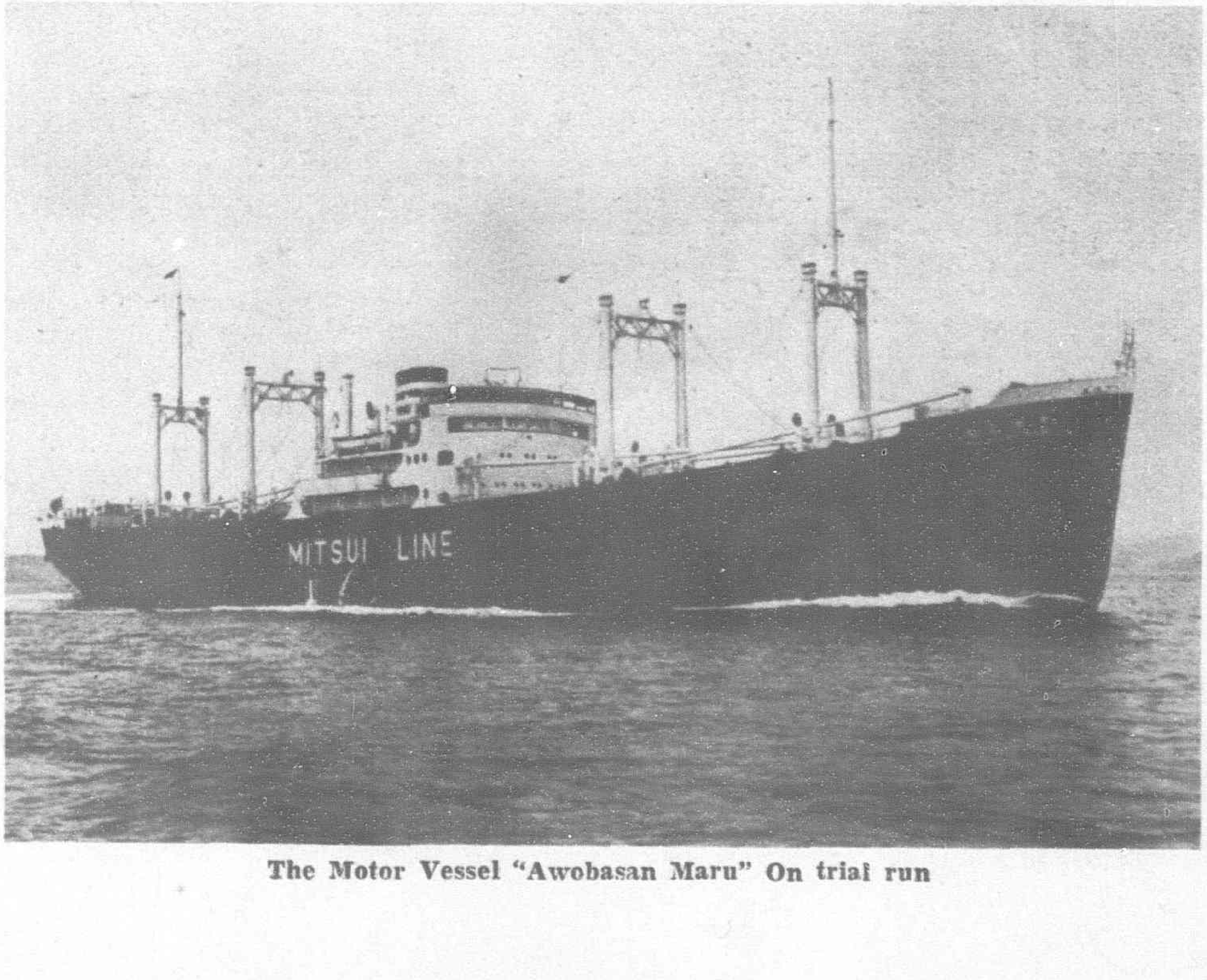
Length between perpendiculars	450-ft. 0-in.
Breadth moulded	62-ft. 0-in.
Depth moulded to upper deck	39-ft. 6-in.
Upper 'tween deck height	9-ft. 0-in.
Lower 'tween deck height	10-ft. 0-in.
Full load draught	27-ft. 1-in.
Deadweight	9,569 tons
Cargo capacity, grain	635,684 cub. ft.
Cargo capacity, bale	584,262 cub. ft.
Gross tonnage	6,359.02 tons
Net tonnage	3,711.21 tons
Design speed (fully loaded)	16.75 knots
Trial speed	18.55 knots
B.H.P. (normal)	7,000
B.H.P. (trial)	7,510
R.P.M. (normal)	110
R.P.M. (trial)	121

The vessel has been constructed and equipped in compliance with the requirements of the Imperial Ministry of Communications for a first class ocean-service vessel and also under special surveys of Teikoku Kaiji Kyokai (the Imperial Marine Corporation) and British Corporation for the classifications N.S.* and B.S.,* respectively.

The *Awobasan Maru* was laid down on March 14, 1934, launched on January 22, 1935, and completed on March 30, 1935.

General Arrangement

The photograph illustrates the *Awobasan Maru* on trial, and it will be appreciated that the design has resulted in a vessel of pleasing appearance. The general arrangement is shown by the elevation and deck plans. The straight raked stem is constructed of plates and has a streamlined leading edge under the water line. Ample flare has been given to the bow to ensure good seaworthiness. The stern is of the cruiser type; and the Oertz rudder fitted is of a double-plated streamlined form. The propeller post and the rudder post have special forms, the former being shaped sharp-ended, while the latter forms the leading body of the Oertz rudder. There are four pairs of derrick posts united at the upper extremities, the foremost and aftmost pairs are fitted with a pole mast at the middle of the top lattice girder.



The Motor Vessel "Awobasan Maru" On trial run

The ship's form was decided after model tests had been carried out at the experimental tank of the Imperial Ministry of Communications in order to ensure the most economical form for the propulsion of such a fast cargo vessel. The results of official trials confirmed that the selected lines are very suitable to this class of ship.

The *Awobasan Maru* is a full-scantling flush-deck vessel with a short forecastle. There are three structural decks—the upper, second and third decks. The upper and second decks extend continuously throughout the length of the ship, and this applies also to the third deck, except that the deck is suppressed in way of No. 5 hold. Above the upper deck are a short forecastle, a midship bridge erection with deck-houses above, a small deck-house aft, and small houses at the twin derrick posts. The appearance of the vessel is much enhanced by the curved front of the bridge erection.

The upper deck as will be seen from the plans, is nicely arranged and free from obstructions, and will be available for the carriage of deck cargoes, should occasion require.

Seven transverse watertight bulkheads extending to the upper deck, and additional transverse and longitudinal oil-tight bulkheads are introduced below the third deck immediately aft of the machinery space to form a nest of four tanks for the transport of oil cargo, the total capacity of these tanks being 1,244 tons.

It may be mentioned that the frame spacing over the greater part of the length is 33-in., and the shell plating at the forward part of No. 1 hold is increased in thickness and additional half-depth girders are fitted for providing against panting.

The machinery space is located amidships; and there are three cargo holds forward, and two cargo holds and the oil-cargo tanks previously mentioned abaft the engine-room. The aggregate cargo capacity, as already mentioned, is 584,262 cub. ft. (bale) or 635,684 cub. ft. (grain).

A cellular double bottom extends continuously throughout the length of the vessel between the peak bulkheads, the depth being increased in way of the machinery space and towards the ends of the vessel. The double bottom is subdivided transversely into ten separate tanks, which are also divided into port and starboard tanks by the oil-tight center girder. All tanks are available for the carriage of oil fuel, with the exception of small sections in vicinity of the engine-room, which provide fresh water tanks, lubricating oil tanks, drainage wells, etc. The double bottom is alternatively available for water ballast, but will be only very rarely used for this purpose. The vessel will bunker at one oil port only, the large capacity provided being sufficient to obviate the necessity for rebunkering at any other port. The fore and after peaks are, as usual, available for water ballast for effecting adjustments of trim.

The arrangement of the various decks is

sufficiently indicated by the general arrangement plans, and detailed comment is unnecessary.

Accommodation

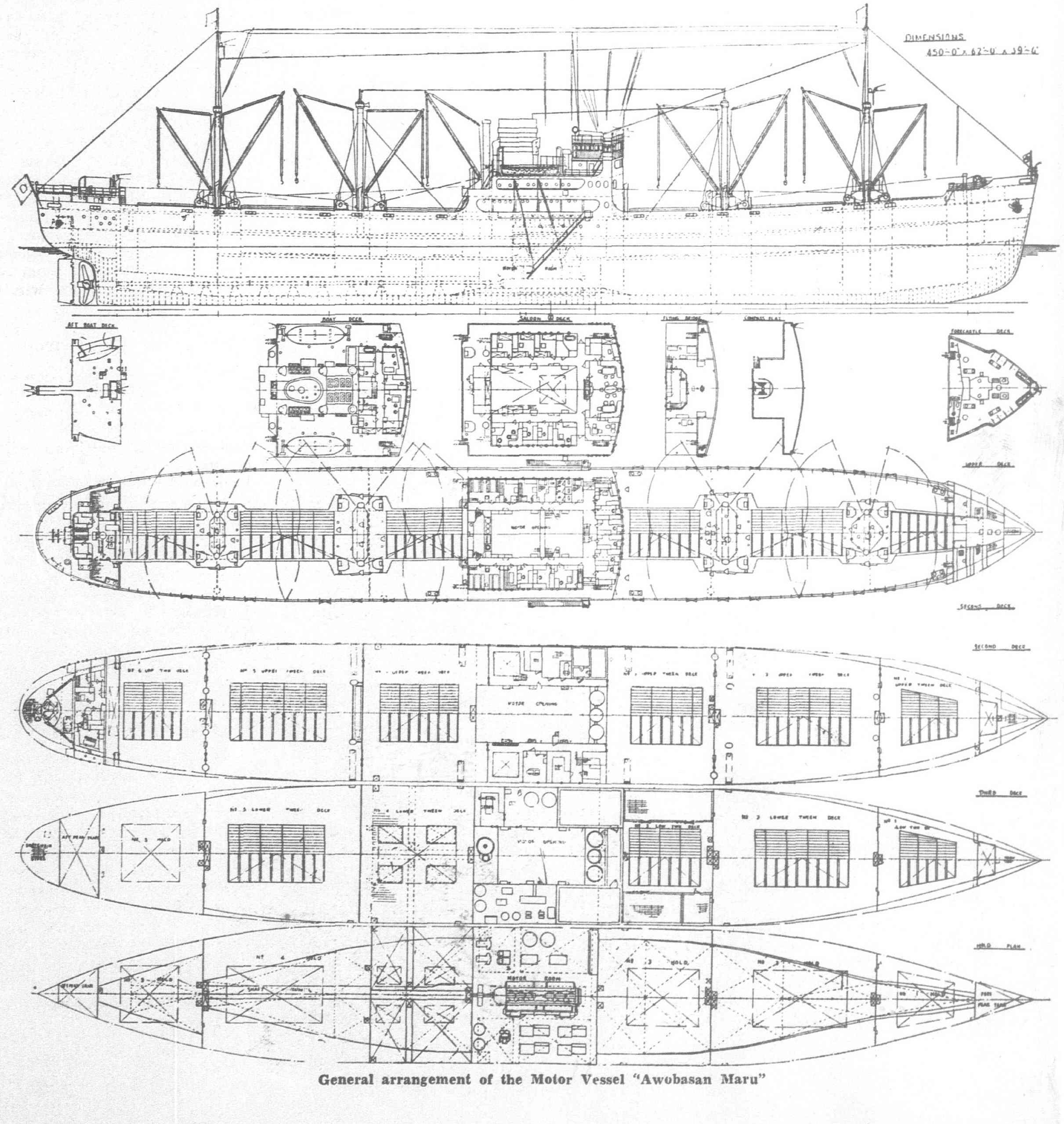
Living spaces for officers, engineers and a part of crew, are arranged above the upper deck amidships, whilst the majority of crew are accommodated at stern. On the upper deck amidships is the accommodation for engineers, apprentices, stewards, quartermasters, boys and cooks, etc., including officers' and engineers' mess, crew's mess, bathrooms and toilets for officers, engineers, and crew, etc. On the saloon deck are a spacious and comfortable dining-saloon and a cosy smoke-room at front; the chief engineer's, chief officer's and wireless operators' rooms at starboard; four staterooms, passengers' bathroom and toilet, and a pantry, at port. The accommodation for the captain, second and third officers, and chief operator, wireless telegraphy office, etc., are on the boat deck.

All the living quarters are adequately ventilated, and a complete system of electric room-heating is arranged throughout. Further, electric bracket fans are fitted to all living rooms, and an electric bath heater is provided for each bath.

Cargo-Handling Equipment

The large cargo capacity has necessitated the provision of handling appliances on a generous scale, and special care has been taken by the shipbuilders to secure a high degree of efficiency in the loading and discharging operations.

The six hatchways are served by 18 tubular steel derrick-booms welded electrically. These are supported on four twin-derrick posts on the upper deck and two derrick posts on the saloon deck aft, as indicated on the plans and the photograph, the booms being of sufficient length to give an ample outreach beyond the midship half-breadth of the vessel. The whole of the cargo gear has been designed to meet the industrial laws of the United States



General arrangement of the Motor Vessel "Awobasan Maru" of America. For operating the derricks, 18 electric winches are installed. These have been supplied by the Shibaura Electric Works, Ltd. They are of 5-tons and 3-tons lifting capacities at speeds of 120 and 135-ft. per minute, respectively, all being worked at 220-volts D.C. The control is on contactor system, the switches, resistances, spares, etc., being located in the small houses at the derrick posts.

The following table indicates the sizes of various hatchways, and the lifting capacities of the derricks and winches available at each.

Hatchway No.	*Dimensions on the upper deck*	*Derricks No.*	*Derricks Capacity tons*	*Winches No.*	*Winches Capacity tons*
1	26′-0″ × 20′-4″ × 16′-0″	2	5	2	3
2	43′-6″ × 22′-0″	2	5	2	3
		2	20	2	5
3	33′-0″ × 22′-0″	2	5	2	3
4	35′-9″ × 22′-0″	4	5	4	3
5	44′-0″ × 22′-0″	2	10	2	5
		2	5	2	3
6	26′-0″ × 22′-0″	2	5	2	3

Nos. 2, 3, 4, 5 and 6 hatchways are widened by 4-ft. on the second and third decks, whilst No. 4 hatchway on the third deck is replaced by four oil-tight hatchways of 11-ft. by 8-ft.. and 13-ft. 9-in. by 8-ft.

Windlass, Mooring Winch and Steering Gear

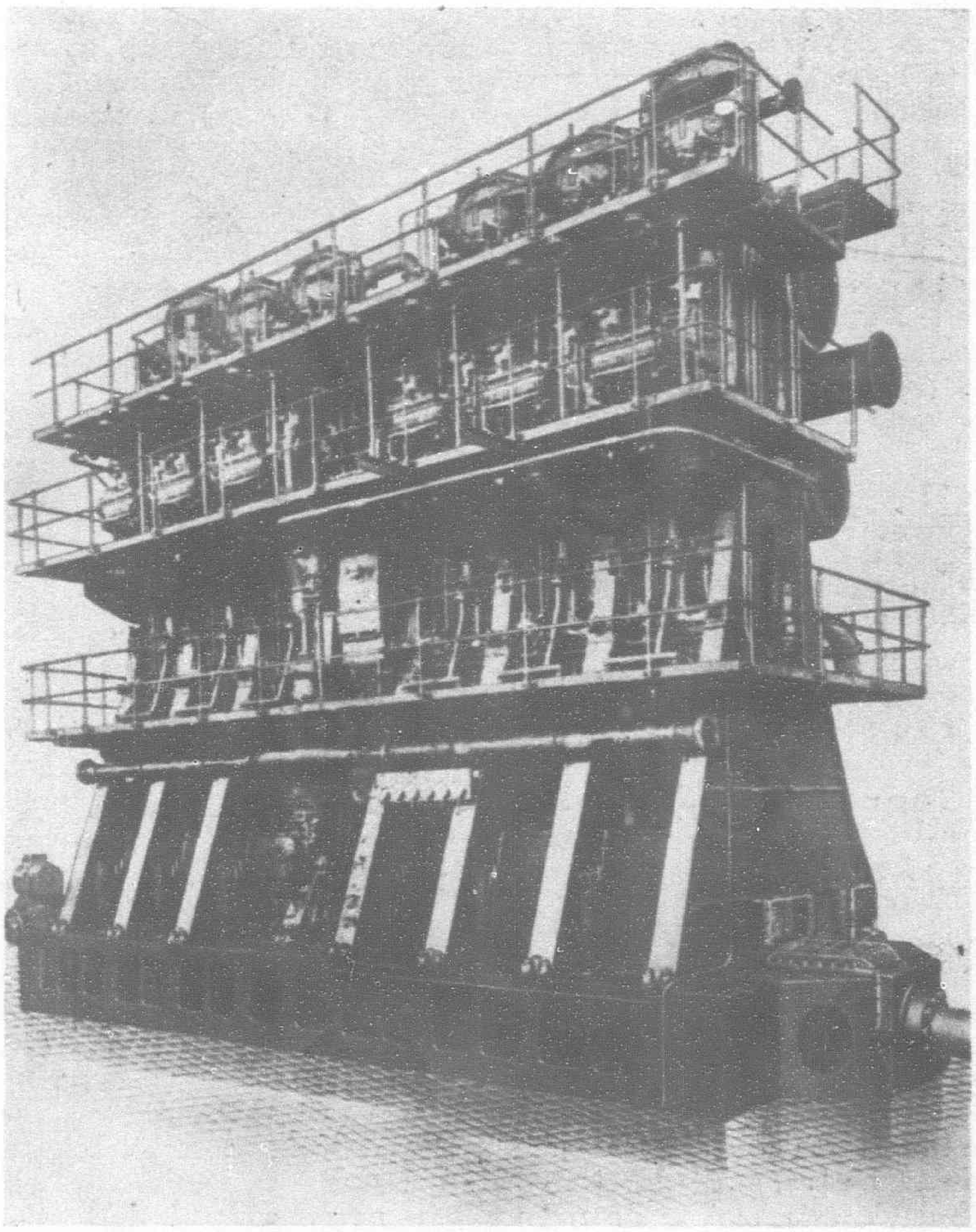
The windlass is electrically driven, the motor and contactor gear being installed in a compartment in the forecastle 'tween deck. The complete machinery has been supplied by the Shibaura Electric Works, Ltd. The motor develops 70 h.p. at 220-volts, this power being sufficient to exert a pull of 19 tons at a hauling speed of 25-ft. per min. Warping ends are fitted to the windlass, and the control is effected by means of a small hand-wheel fitted to a standard on the forecastle deck. An anchor telephone is mounted on the forecastle head.

In a small deck-house at the after end of the upper deck is installed an electrically driven mooring winch having extended warping ends. This is also of the Shibaura Electric Works; the electric motor, which operates on direct current at a pressure of 220-volts, exerting a pull of 8 tons at a speed of 75-ft. per min.

The steering gear has been supplied by the same Works, and is of all-electric simple quadrant type controlled on Ward-Leonard system. The steering motor develops 27 b.h.p. worked at 220-volts, the setters, watchers, motor-generator, switches, starter, resistances, etc., being complete. The gear is installed in the steering gear room at the aftmost part of the second deck, and is controlled from both the flying bridge and aft boat deck, also emergency hand-wheels being provided at the stern of the upper deck.

Navigating and Life-Saving Appliances

The equipment of navigating appliances comprises, two sets of patent standard Azimuth compasses, one spirit steering compass, one set of radio-compass, one high-speed patent log, one set of mechanical engine telegraph, loud-speaking telephones and other necessary instruments.



The Main Engine of the Motor Vessel "Awobasan Maru"

The wireless telegraphy installation comprises, one set of 500 watt continuous-wave main wireless-telegraph, one 250 watt auxiliary set, and one set of 400 watt short-wave wireless-telegraph, all having been supplied by the Anritsu Wireless Co., Ltd.

The equipment of life-saving appliances consists of two life-boats, each 8.56 m. by 2.68 m. by 1.78 m., and a "temma" of 5.60 m. by 1.72 m. by 0.58 m.

For handling these life-boats, patent davits of Columbus type are installed on the boat deck, the "temma" being stowed under ordinary davits on the aft boat deck.

Ventilating, Heating and Lighting Arrangements

Natural ventilation system is widely adopted. For ventilating the cargo holds and 'tween deck spaces, usual cowlhead ventilators are fitted, and also all the derrick posts are utilized as ventilators for the cargo spaces. Mushroom or goose-neck ventilators are fitted to all cabins, bathrooms, toilets, pantries, stores-etc. For the machinery space, two 30-in. cowlheads, each with an electrically driven fan, are provided, and also four 33-in. cowl, heads are mounted on the top of the engine casing. Further, electric bracket fans are provided to all living rooms, as mentioned before.

The heating of all living spaces is effected by a complete system of electric room-heating arrangement, and also an electric bath-heater is provided to every bath.

The vessel is illuminated throughout by electric lamps. Special care is taken for the lighting of decks and cargo hatchways in order to ensure efficient cargo handling at night. These embody three sets of 300 watt cargo clusters to each hatchway, one 500 watt light to each derrick post, four 500 watt lights to the masts, four 500 watt cargo-lights, 100 watt lamps to gangway ladders, etc. Further, emergency lights are fitted to the engine-room, saloon, mess-rooms and other necessary places, an emergency dynamo as well as a battery of 12-volts being provided with complete wiring for the purpose.

Fire Extinguishing and Refrigerating Appliances

For extinguishing fire on board, steam pipes, besides the usual fire main, are led from the donkey boiler in the engine-room to all holds and 'tween deck spaces in compliance with the requirements of the Board of Underwriters of New York for the fire-extinguishing apparatus on motor vessels carrying cotton.

The vessel has two refrigerating rooms with an aggregate capacity of 158.80 cub. m., and a daily-use refrigerating room of 23.31 cub. m. For the former, CO_2 refrigerating system with brine pipes is adopted, and the latter with ammonia direct system.

Decoration and Furnishing

As illustrated, simple and pleasing style is adopted for decorating and furnishing the public and private rooms. All the cabins are built of steel and panelled with soft-wood painted white, whilst the saloon, smoke-room and state-rooms are panelled with Japanese oak and the ceilings with soft-wood painted white. The furniture matches the style of decoration.

Propelling Machinery

The main propelling machinery of the *Awobasan Maru* is one set of Mitsui-B.&W. double-acting two-cycle airless-injection DM662WF140 type Diesel engine, with six cylinders of 620 mm. bore and 1,400 mm. stroke, developing normally 7,000 b.h.p. or 8,500 i.h.p. at 110 r.p.m. The overall length of the engine is 11,900 mm., the width 4,360 mm., the height from the center line of crankshaft to the top of engine 9,150 mm. and the weight of the engine proper about 420 tons.

The bedplate, frames and cylinders of this engine are fastened with vertical through bolts, so as to take up all tensile stresses due to the combustion pressure in the cylinders.

In addition to the main crankshaft there is an auxiliary shaft, operated by a special piston valve mechanism, which opens or closes the exhaust ports of the cylinders. This auxiliary shaft has the effect, due to the operation of the exhaust piston valves, of augmenting the total engine output by some 15 per cent.

Two special blowers direct coupled to the main engine are provided to supply scavenging air to the cylinders. These are of the enclosed 4-Blades Roots type driven by roller chains from the auxiliary crankshaft, and each compresses 320 cub. meters of free air per minute at 407 r.p.m. which corresponds to the normal revolutions of the engine. The air is drawn in through a silencer and is compressed to a pressure of about 1.2 kgs. per sq. cm. absolute, and is delivered to the suction air piping of the engine. There is a hinged type change valve at the upper part of the blowers; hence the suction and delivery are maintained when reversing the engine. This hinged valve is automatically interchanged by means of the manœuvering gear.

Scavenging air is supplied to the cylinder through air ports at the middle part of the cylinder from air piping carried forward and aft on each side of the engine, and enters the cylinder towards its center with a rotational motion, and proceeds upwards and downwards so as to discharge the exhaust gas from the top and bottom exhaust ports. The air flow being in definite directions only, efficient scavenging and air charging result. The air required for this purpose is only about 1.14 times the cylinder volume, and the mean indicated pressure can be attained higher than 7.2 kgs. per sq. cm. without any smoke.

As already stated, pistons are used to open and close the exhaust ports. Both the top and bottom pistons are connected to rocking arms which drive the auxiliary crankshaft through auxiliary connecting rods, whilst the auxiliary crankshaft is coupled to the main crankshaft by means of roller chains. The exhaust pistons, therefore, act in a similar manner to the main pistons.

Fuel is delivered from a tank to the primary fuel pump on the engine control platform through the first oil filter, and further through the second filter to the high-pressure fuel oil pump. Each cylinder is provided with two high-pressure pumps, which deliver fuel oil to the upper and lower part of the cylinder. The fuel is sucked in through the oil inlet when the piston is on the downward stroke, and then, by means of the action of the cam, the piston is pushed upward, and simultaneously it closes inlet and the fuel oil is compressed to a very high pressure.

The fuel is filtered through a third oil filter fitted to the injection valve, and is led to the lower surface of the spindle of the fuel valve through the fuel oil port. When the pressure of the oil overcomes that of the loaded spring, the spindle detached from its seat and the fuel is injected to the cylinder in an atomized form through the jet.

The piston rod is of the best quality Siemens-Martin steel and is surrounded by a sleeve of special cast iron, the inside of the sleeve being for the passage of cooling oil. The stuffing box for the piston rod consists of six packing and two scraping rings and fitted in the bottom piston valve, all the rings being of special cast iron and divided into four pieces for easy overhauling. Mechanical sight feed lubrication is applied.

For cooling the cylinders and cylinder covers, sea water is exclusively used, a regulating valve being fitted to each cylinder cover at the cooling water outlet. The main and exhaust pistons are cooled by oil supplied from the lubricating oil main, through telescopic pipes.

All essential bearing surfaces on the main engine are forced lubricated. The lubricating oil is forced into each main bearing from lubricating oil main fitted along the bedplate, and then through the drilled holes in the crankshaft and connecting-rod, up to the crosshead pin, ensuring the positive lubrication of all the bearing brasses. All chain wheels and toothed wheels are also lubricated under pressure, oil being supplied through branch pipes from the common lubricating oil main.

The starting valves are automatic. In operation, when the manœuvering handle is set to the starting position, the starting air change-valve opens; this motion opens the starting air slide valve and causes starting air to be delivered to the starting air main, and simultaneously the spindle of the starting air distributor is pressed against the cam, commencing the opening operation of the valves. The whole operation is effected by compressed air.

The compressed air for starting and manœuvring the engine is supplied by two sets of independent motor-driven air compressors of two-stage type, each delivering 420 cub. meters of air per hour at 250 r.p.m. at a pressure of 25 kgs. per sq. cm. The electric motor is a D.C. shunt-wound semi-closed ventilated drip-proof type with an output of 90 b.h.p. at 220-volts at 250 r.p.m. There is also one emergency air compressor driven by a 2 h.p. gasoline engine.

There are two sets of 18 cub. meter manœuvering air reservoirs for the main engine, and one starting air bottle of 300 liters for the auxiliary engines, both being at a pressure of 25 kgs. per sq. cm.

The manœuvering devices, together with the revolution counters, pressure gauges, direction indicators, etc., are arranged on a platform at the middle part of the engine, and the temperature of the cooling oil for the main and exhaust pistons and the oil supply to various forced-lubricated parts can be regulated on this platform. The manœuvering handle is used as the starting handle, whilst a safety device is provided for each starting ahead and astern operation.

Electric Generating Plant

Four sets of electric generators are installed in the engine-room. Each comprises a Mitsui-B.&W. two-cycle single-acting solid-injection DM422VH37 type Diesel engine with four cylinders of 220 mm. bore and 370 mm. stroke, developing 200 b.h.p. at 320 r.p.m., and driving a dynamo of 133 kw. at 220-volts, which is of D.C. compound-wound multi-polar type supplied by the Shibaura Electric Works, Ltd.

There is also one set of D.C. compound-wound open drip-proof type emergency dynamo with an output of 20 kw. at 220-volts and driven by a high-speed Diesel engine of 35 b.h.p. at 900 r.p.m. Further, an emergency battery system is provided for lighting necessary lamps in the machinery space, etc. and for starting emergency generator, as mentioned before, the capacity being 56 ampere-hours at 12-volts.

Steam-Generating Plant

In order to supply steam for various purposes on board, a Cochran type exhaust gas boiler with alternative oil burning device is installed in the engine-room. This boiler has a diameter of 7-ft. 6-in., a height of 18-ft. and a heating surface of 710 sq. ft., and is capable of generating steam of 4,900 lb. per hour at a working pressure of 120 lb. per sq. in. when burnt with oil. The oil-burning apparatus with two sets of Corona type burners to work on both steam and air injection. The feed pump is of Worthington type with a steam cylinder of 5-in. bore and a pump cylinder of 3-in. bore, and a stroke 6-in.

Other Engine-Room Auxiliaries

Apart from those mentioned above, the following auxiliaries are installed in the engine-room:—

Two centrifugal cooling water pumps; each driven by a 50 h.p. electric motor, the capacity being 300 tons per hour at 1,000 r.p.m.

Two sets of wing type lubricating oil pumps with a capacity of 250 tons per hour each at 400 r.p.m., driven by a 60 h.p. motor.

One set of gear type fuel oil transfer pump of 30 tons per hour capacity at 500 r.p.m., driven by a electric motor of 15 h.p.

One set of double-acting duplex type general service pump driven by a 50 h.p. electric motor, the capacity being 150 tons per hour at 55 r.p.m.

One set of three-throw type independent bilge and sanitary pump of 60 tons per hour capacity, driven by a 15 h.p. electric motor.

One set of vertical Drysdale centrifugal type general service pump of 60 tons per hour capacity, driven by a 15 h.p. motor.

Two sets of DeLaval centrifugal fuel-oil purifier of 500 gals. per hour capacity, driven by a 3.5 h.p. motor.
One set of gear-wheel type fuel-oil purifier pump of 6 tons per hour capacity at 1,200 r.p.m., driven by a 2 h.p. motor.
Two sets of DeLaval centrifugal lubricating oil purifier of 300 gallons per hour, driven by a 2.5 h.p. motor.
One set of gear-wheel type lubricating oil purifier pump of 12 tons per hour capacity at 1,200 r.p.m., driven by a 5 h.p. motor.
Two sets of condenser type vertical lubricating oil cooler with a cooling surface of 142 sq. meters. etc., etc.

Propeller

The propeller was selected after the model tests had been carried out at the experimental tank of the Imperial Ministry of Communications, and is of a built-up type with four blades of manganese bronze with airfoil section, the diameter being 5.487 meters, the pitch 4.778 m., the developed area 10.219 sq. m., the disc area 23.641 sq. m., the pitch ratio .871, and the area ratio .432.

Trial Results

The official sea trials were carried out on the Inland Sea, the results being entirely satisfactory. A summary of the same is given below :—

Load	*Mean speed knots*	*r.p.m.*	*i.h.p.*	*Mean ind. press. Top kg. per sq. cm.*	*Mean ind. press. Bottom kg. per sq. cm.*	*Exhaust gas temp. Top C.*	*Exhaust gas temp. Bottom C.*
¼	11.9175	75.3	2,680	3.642	2.545	106	132
½	15.463	97.5	4,735	4.703	3.776	163	195
¾	16.953	108	6,140	5.628	4.283	200	233
4/4	18.0795	116	8,217	6.778	5.610	243	278
11/10	18.545	121	8,952	6.953	6.006	275	310

Kiangnan Railway Gets Locomotive Built in Poland

(Continued from page 76)

(*d*) At Chodziez, near Poznan : Modern brick factory. Saw Mills and wood-working plants.

The total area occupied by H. Cegielski enterprises comprises about two million square meters, of which 115,000 square meters are covered by modern factory buildings equipped with the most modern machinery.

The Locomotive and Carriage Plants

Department " C," a bird's eye view of which is shown in an accompanying illustration, is the section of the Cegielski enterprises given over to the building of locomotives and railway wagons and carriages.

This vast department occupies an area of 220,000 square meters of which 68,000 meters are covered by factory buildings. All these various buildings are inter-connected with longitudinal and transverse travelling cranes of various capacities, all operated by electricity. This arrangement makes it possible expediently to shift and move huge pieces of equipment and machinery in any direction as needs dictate without loss of time. Weights up to 120 tons easily are lifted and carried from any part of one building to any part of other buildings with maximum speed and ease.

The boiler manufacturing division, shown in an accompanying illustration, is fully equipped with modern drilling machinery operated entirely by electricity. An up-to-date hydraulic system of riveting is practiced in the plant, controlled by a special automatic machine invented by Professor Schuch. This automatically provides a graph of any work being done by the riveting machine, enabling those directing the work to see at a glance at the graph what is being done and to control the work of the machine. In this Department " C " also are a number of steam-driven hammers of 4,000 kg. capacity and a large number of pneumatic hammers of various capacities ranging from 25 to 300 kg. Also there are a number of hydraulic steam presses up to 500 ton capacity with the necessary minor equipment. Electric power for Department " C " is provided from a turbo-generator of 2,200 kw. capacity for alternating current of 3,000-volts and when required additional power is obtainable from the city power station.

Since it was established in 1926 the H. Cegielski locomotive factory has erected nearly five hundred modern locomotives of various types for the Polish State Railways. Another noteworthy achievement of the plant was the building of twelve extra-heavy 2-12-4 locomotives for the Bulgarian State Railways. These and various different types ofl ocomotives manufactured by H. Cegielski, Ltd., have frequently been described in leading Continental and British engineering publications, notably *The Locomotive, Carriage and Wagon Review,* of London, and communications from the Ministries of Railways of the Governments of Poland and Bulgaria addressed to the Company attest the high quality and satisfactory performance of locomotives and railway equipment produced in the Cegielski plant.

The yearly output of Department " C " of H. Cegielski, Ltd. in railway equipment is :—

Locomotives	150 per annum
Freight cars, oil tanks, refrigerator cars, etc.	2,400 per annum
Passenger cars, sleeping cars and dining cars	120 per annum

The Kwangtung Iron and Steel Works Project

(Continued from page 77-78)

(*b*) Estimated reserve.

Preliminary prospecting by opening 43 inclines, scattered over the whole deposit, was carried out by the Department of Reconstruction. As a result a conservative estimate of from 10,000,000 to 15,000,000 short tons was made.

Rough estimate by the Liang Kwang Geological Survey was 30,000,000 metric tons.

(*c*) Transportation :

10 miles by rail from mine to river town, then 155 miles by water to plant site.

(2) Kou Ya Tung coal mine.

(*a*) Analysis :

Moisture	0.85%
Vol. matter	24.32%
Fixed Carbon	58.58%
Ash	16.25%
S	0.86%
Heating Value	12,884 B.T.U.

(*b*) Estimated reserve.

Estimate made by Liang Kwang Geological Survey 33,000,000 metric tons.

(*c*) Transportation :

About 220 miles by rail from mine to plant site.

(3) Limestone :

(*a*) Analysis :

$H_2 0$	0.06
$Si\ 0_2$	1.37
$Fe_2 0_3$	3.65
$Al_2 0_3$	0.22
$CaC0_3$	93.22
$Mg0$	1.52

(*b*) Transportation :

15 miles by water from quarry to plant site.

(4) Manganese, tungsten, fluospar and silica are all found within the Kwangtung province. Other iron ore deposits are found in Chikam, Pao-on, Ying Tak, Shun Yi, Tsung Fa and Hing Ning districts. Other coking coal fields are found in Young Mei Shan, Lok Chang district, and also from the neighboring provinces of Hunan, Kiangsi and Kwangsi.

British Locomotives for Chinese Railways

(Continued from page 72)

The capacity of the tender is 11¾ tons of coal and 6,600 gallons of water. In working order the engine weighs 115 tons 16 cwt. 2 qr., 66 tons 18 cwt. 1 qr. of which are available for adhesion, and the tender 76 tons 18 cwt., a total of 192 tons 14 cwt. 2 qr. The engine develops a tractive effort at 85 per cent of the boiler pressure of 32,920 lb.

In the case of the eight engines to be built when the present order for sixteen has been completed, the diameter of the cylinders will be increased from 530 mm. (20⅞-in.) to 540 mm. (21¼-in.), and it is expected that under usual service conditions these cylinders may be bored out to a still larger diameter. The connecting rods will be made of manganese molybdenum steel to compensate for the additional load they carry.

The inside fireboxes will be built of Colvilles special double crown brand firebox steel.

Engineering Notes

AVIATION

PROJECT IS DELAYED—It is learnt that the projected Sian-Chengtu Airway can not be inaugurated until the completion of the aerodrome at Hanchung, southern Shensi. To expedite the work of construction, Lieut.-General Sun Wei-ju, Commander of the 38th Army, has assigned one company of soldiers to assist in the work.

NEW AIR LINES.—The Tokyo Ministry of Communications has decided to begin work on two air-mail and passenger lines connecting Tokyo and Palao and Fukuoka with Talhoku. The new lines will connect Japan, proper, with insular possessions and also islands in the mandated group in the South Seas. Douglas planes will be used for the new routes.

EXTEND AIR LINE.—The Canton Municipal authorities are planning to establish a civil aerodrome in Honam island, opposite Canton city. The South-western Aviation Corporation has decided to extend, as from August 15, its Canton-Hai-nan Airway from Pakhoi, south-western Kwangtung, to Nanning, provincial capital of Kwangsi, so as to link up with the Canton-Lungchow Line.

DESIGNS MONOPLANE.—A two-seater long-range monoplane, similar in appearance to the famous British (De Havilland) Comet, has been designed and built at Bandoeng, near Batavia. The Walraven 2, as the type of aircraft is called, has a top speed (according to Pobjoy Airmotors, Ltd., of Rochester, two of whose 90-h.p. Niagara engines are used) of 156 m.p.h. Its cruising speed is 137 m.p.h., its range 1,100 miles. The designer of the aircraft is Mr. Walraven, a young Dutch engineer at Bandoeng.

IN SOUTH PACIFIC.—The Netherlands Indies company, K.N.I.L.M., are taking steps to be first with an extensive network of airlines in the South Pacific. A service between Java and the Philippines via Dutch and British North Borneo is being actively prosecuted and aerodromes are being conditioned. K.N.I.L.M. hope to bring Manila within a day's reach of Sourabaya before the end of 1935.

AVIATION IN CHINA.—The Chinese National Government has decided upon drastic reorganization of its military air force, providing it with 1,000 planes in the immediate future. According to plan, the force, now consisting of six corps, will be enlarged to ten flying corps, each comprising three flying units of 30 planes each. The Nanking authorities also intend to establish a central air base at Loyang Honan Province, and to enlarge the bases at Hanchow and Nanchang. The program also provides for the training of 1,000 pilots by the end of 1936, and in the course of 1937 another force of 2,000 flying officers.

DAIREN AERODROME.—Construction of a new macadam flight way extending over 600 meters forms one of the improvements of the Dairen aerodrome which was undertaken in 1935. Other improvements include the construction of a macadam flight way of 682 meters long and 40 meters wide, ultimately extending to 900 meters long and 60 meters wide, at a total expenditure of Y.200,000 on a three-year plan, the equipment of flashlights for night service, equipment for aeroplane inspection, and the establishment of signal posts between Dairen and Antung. It is also reported that the year's appropriation asks for the establishment of a new aeronautic wireless station at a cost of Y.87,000. The Dairen aerodrome is one of the most important terminals in the air route between Japan and Manchuria.

SHIPPING

ANOTHER TRAIN FERRY.—In order to cope with the demands of increasing traffic between Hsiakwan and Pukow, the Ministry of Railways is reported to have decided to purchase another train ferry and two more service launches for the Tientsin-Pukow Railway, which will involve an outlay of $300,000. At the same time, the ministry is also planning to expend the facilities of the No. 5 wharf at Nanking.

MATERIALS FROM ENGLAND.—The China Merchants' S.N. Company has decided to construct a 5,000 ton vessel for the Yangtze, cost estimated at $1,000,000. The company has £35,000 left from Boxer Fund money allotted for the purchase of the s.s. *Hai Yuan*, *Hai Heng*, *Hai Li*, and *Hai Cheng* from England. It is proposed to use this money for the purchase of materials from England, and to borrow $500,000 from Chinese banks for the purpose of building the vessel in China. Tenders will be invited immediately if the negotiations with the banks are successful.

AUTO FERRY SERVICE.—To provide through traffic between Pukow and the Capital, the Inter-Provincial Highways Committee (for Kiangsu, Chekiang, Anhui and the municipalities of Nanking and Shanghai) under the National Economic Council, has decided to instal a ferry service at Hsiakwan for the conveyance of motor-cars across the Yangtze River. The project calls for the construction of special pontoons, and jetties on both banks of the River and the building of a powerful steam ferry designed specifically for the purpose. The expenses are estimated at about $200,000—about $80,000 for the wharves and over $100,000 for the ferry—and will be equally borne by the Nanking Municipal and the Committee.

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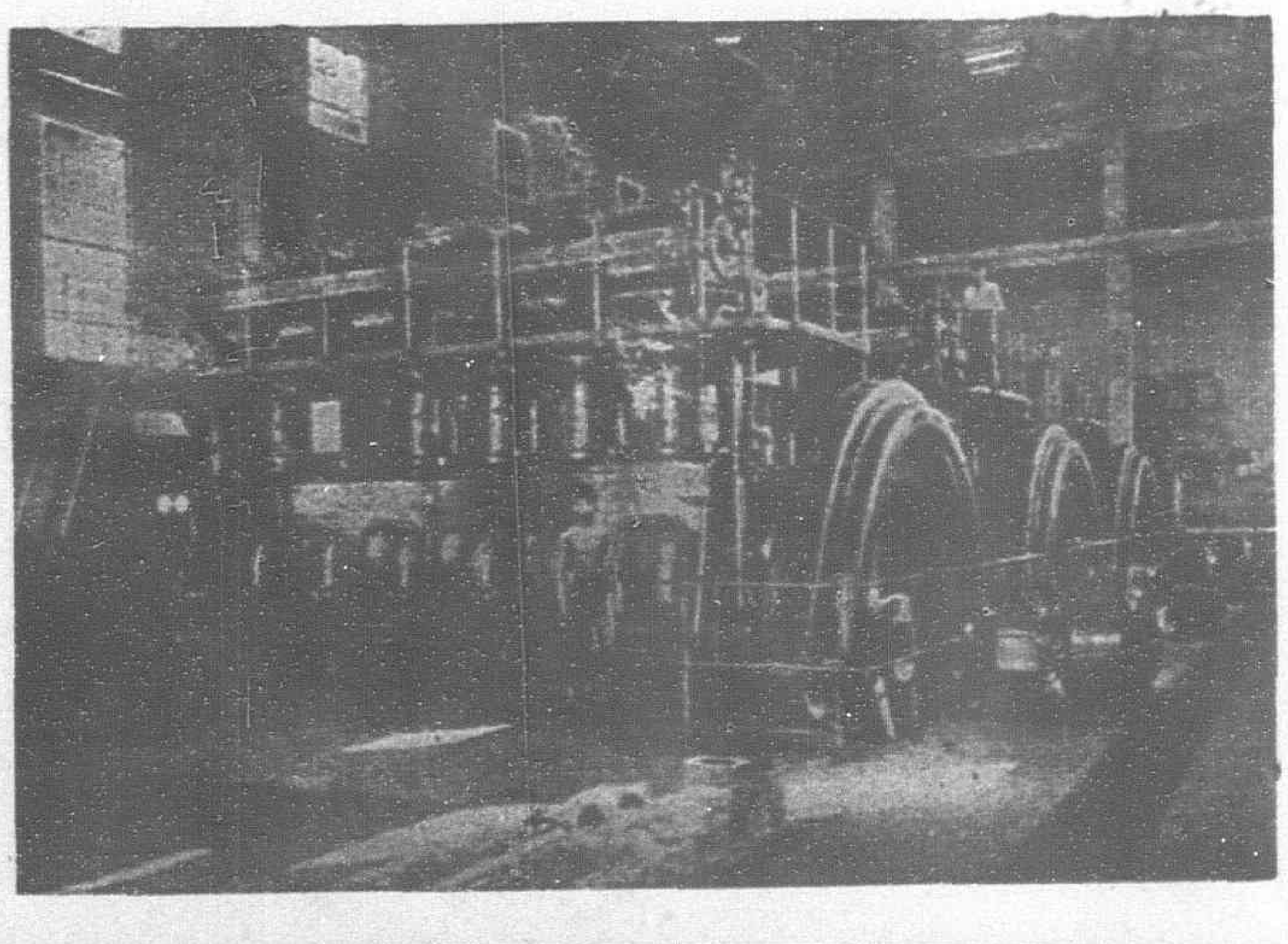

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WINTERTHUR. SWITZERLAND.

INDUSTRIAL

SUMITOMO MERGER.—The Sumitomo Copper and Steel Tubing Company, capitalized at Y.25,000,000, fully paid, has decided to effect a merger with the Sumitomo Steel Works, capitalized at Y.15,000,000, fully paid.

BABY MOTOR CARS.—The Mitsui Bussan Kaisha is reported to have decided to manufacture baby motor-cars. A site has been selected at the Minamishinagawa Reclamation where the new factory will produce about 100 cars a month.

JAPANESE PUBLIC WORKS.—Appropriation of Y.57,245.000 in the 1936-37 budget will be sought by the Japanese Public Works Bureau. Efforts will be made to co-ordinate relief works and enterprises of a more permanent nature.

SHOWA STEEL.—The Showa Steel Works in Manchoukuo, under control of the South Manchuria Railway Co., has asked of the Industrial Bank of Japan a loan involving Y.30,000,000 for construction of manufacturing equipment.

HARBIN WATER WORKS.—Harbin Municipality is working hard on its new water system and it is hoped that a supply of fresh water will be available this month for the first stories of houses, arrangements not having yet been made for forcing the water higher.

MILL MERGER.—An agreement for the merger of the Owada Cotton Spinning Co., capitalised at Y.4,000,000, and the Kennen Cotton Spinning Co., with a capital of Y.2,750,000, has been initialled. Japan's largest cotton spinning concern is the Toyo Company, capitalized at Y.70,975,000.

SODA FACTORY.—Application for permission to build a plant in Fukuoka has been filed by the Kyushu Soda Company. The company has a capital of Y.10,000,000. It will spend Y.2,100,000 on the factory to begin with. On completion, it will produce about 100 tons of soda ash a day.

CHINESE INVENTION.—A process which is likely to have far-reaching effects on the Chinese silk industry has been invented by Miss Feng Yun-ho, a native of Shantung, while pursuing her researches in Germany. It is a process for manufacturing rayon from the pulp of the kaoliang plant.

SPINNING MILL SCHEMES.—Dai Nippon Spinning Company has decided to purchase land covering 230,000 *tsubo* from the Oriental Development Company at Jinsen, Korea, for erection of a cotton spinning mill. The company also has decided to erect one at Heijo, another large city in Korea.

JAPANESE MOTORS.—Spurred on by the promise of an Automobile Industry Law to limit the activities of foreign competitors, Osaka Machine Works has decided to make complete motor-cars. It is now building a factory at Amagasaki. Toyoda Automatic Loom Works of Nagoya, which has a Mitsui connection, has already started making finished cars.

MANDATED ISLANDS.—Expenditure of Y.30,000,000 in the next ten years for the general development of Japan's mandated islands in the South Pacific is one of the recommendations made by a special sub-committee of the Tokyo Ministry of Overseas Affairs. The group also urged establishment of a company, capitalized at Y.20,000,000, for development purposes.

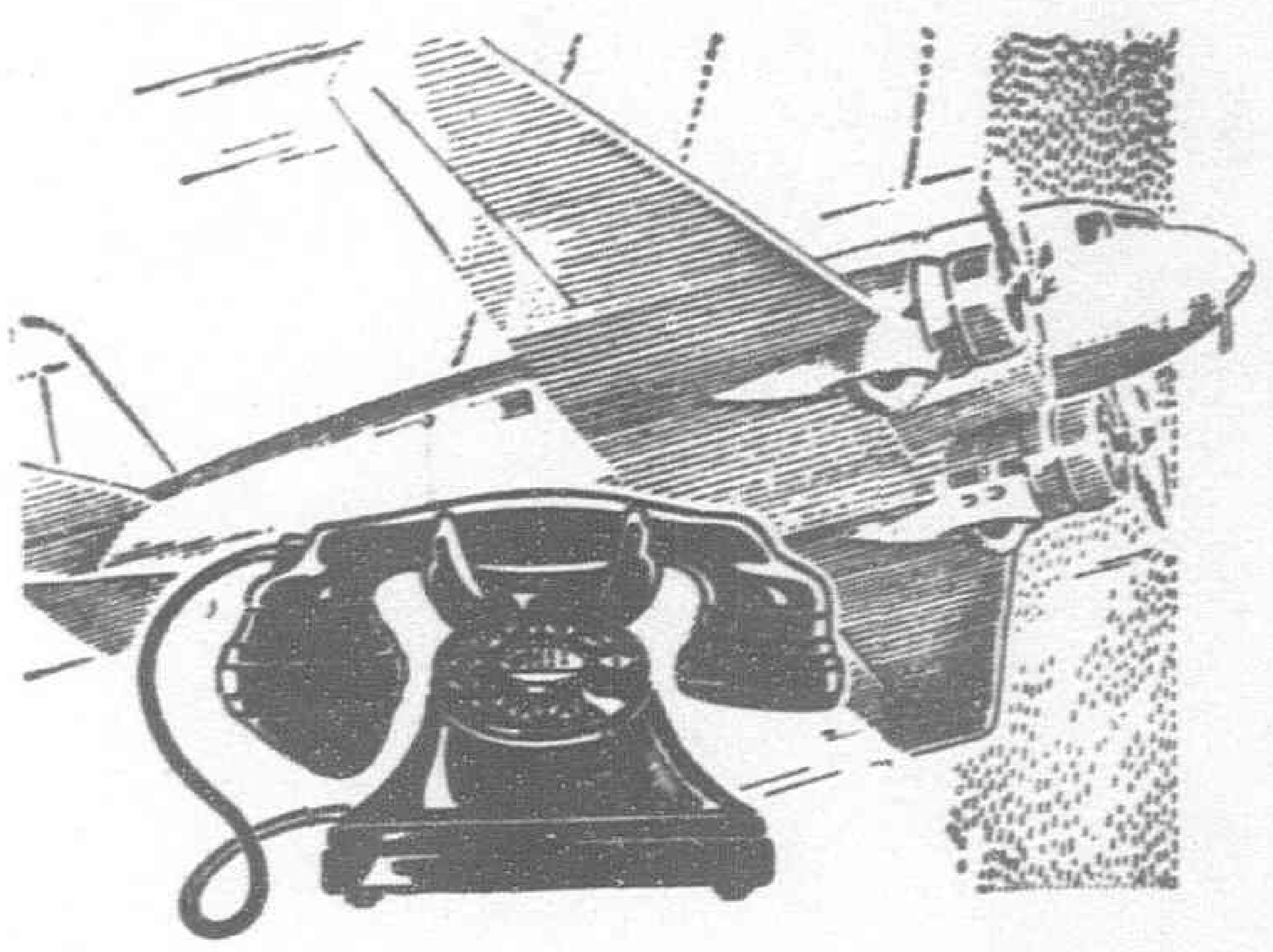
PLANS FOR KULING.—Ambitious plans for the conversion of Kuling, the summer resort in Kiangsi, into a National Park are now being made. The plans include a lagoon for boating, an arboritum, and a swimming pool. The construction of waterworks is now well under way. Kuling leased territory will be officially returned to the Chinese authorities from January 1, 1936.

CAR MANUFACTURE IN JAPAN.—Mitsui motor interests have decided to manufacture a car something like a medium-sized Fiat. The High Speed Engineering Company, recently organized by the Mitsuis, will do the work. Construction of a factory covering 6,000 *tsubo* commenced at Minamishinagawa, Tokyo. Small trucks, motor buses and Diesel engines will also be made.

MANCHU PULP FACTORIES.—The Manchoukuo Government was to sanction in August the foundation for four Japanese rayon pulp factories, the Toman Rayon Pulp Co., capitalized at Y.15,000,000, Nichiman Pulp Co. Y.20,000,000), Manchoukuo Pulp Co. (Y.10,000,000), and the Daido Pulp Industry Development Co. (Y.10,000,000). These companies estimate their annual outputs at 30,000 tons apiece.

FACTORIES FOR MANCHOUKUO.—Japanese merchants in Mukden contemplate establishing a soap manufacturing company in Mukden with a capital of Y.1,000,000. The Toyo Kokusan Kabushiki Kaisha (Oriental Corn Products Co., Ltd.) just incorporated in Osaka with two factories, one in Mukden and the other near Himeji, plans to make cornstarch from kaoliang. Estimated capacity of the Mukden factory is 1,000 sacks and 1,200,000 kin of by-products. The Himeji factory is expected to turn out 4,000 50-pound sacks of industrial starches.

WINGS TO
YOUR WORDS



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CANTON'S PUBLIC WORKS.—To facilitate development in Kuangtung, arrangements have been made with Canton bankers for a loan of $3,000,000. The bonds, which will be redeemed in five years, are secured on the income of the Shih Ming factory, a provincial enterprise, which turns out native products valued at $300,000 monthly.

FLOOD PREVENTION.—The British Boxer Fund Trustees have considered and passed a request of the Hwai River Conservancy Commission for an advance of $750,000 for the construction of three locks at Hwai Yin, Shaopeh and Liu Lao Hsien. It is proposed to repay later with the repayment of principal received on the Ministry of Communications' £200,000 loan.

RESTRICTS BULB EXPORTS.—Japanese electric lamp makers and exporters have managed to get Korean makers and exporters under control. For months Korea proved a thorn in their side, shipping without hindrance many products which were being restricted from export. This was particularly true with electric light bulbs for the British market. Japanese makers and shippers had a quota, but Korea was exceeding the quota alone and unassisted. Now Korea has a quota for Great Britain as well.

NEW HARBIN PROJECT.—The Harbin Municipality have decided to form a manufacturing center just below Harbin on the banks of the Sungari. It will be necessary to build a railway to carry supplies and raw material to each factory and this will alone require $248,000. The largest factory will be a cement plant to supply all needs for construction in Harbin and the neighborhood. The plan is acclaimed by industrial circles and is likely to have strong support from the banks.

FACTORY EXTENSION.—The Sino-British Tonshan Portland Cement Co., in Hopi, capitalized at 8,800,000 yuan and with an annual capacity of 1,600,000 barrels, is reported to have ordered from Japan two rotary kilns each with a daily capacity of 300 tons. The business was placed through the Mitsui Bussan Kaisha. The concern has been relatively inactive since the Manchuria Incident removed its largest customer. Now that peace has been restored the company has decided to expand.

ELECTRICAL

NIPPON ELECTRIC.—The Nippon Electric Power Company has filed an application for permission to construct another power station on the Kurobe River. The new station is to generate 70,000 kw. of power, and the cost is estimated at Y.20,000,000. The company proposes to start work late in 1936 and finish in 1939.

JAPANESE LINES.—According to statistics published in Tokyo, the Japanese Government Railways control 350 route miles of electrified lines and 35 sub-stations, with an aggregate capacity of 207,500 kw., while the rolling stock includes 164 electric locomotives and 1,383 motor coaches and trailers. Further electrification is proceeding.

WATER POWER.—Manchuria Electric Co. is to undertake large-scale water power generation, using the Mutan River, a tributary of the Sungari. The plan calls for an eventual capacity of 1,000,000 kw., but it is doubtful if this will be attempted at first. Experts from the Manchurian company will be sent to Japan to inspect modern plants there.

ELECTRICITY SCHEME.—Gen. Chiang now is tackling the problems of West China, and this includes Kweichow, Yunnan and Szechuen, has an electrical program for Kweichow, using one of the high waterfalls to generate electricity which will bring light and power to the whole province. In Szechuen the water power from the high Tibetan mountains could supply all the electricity needed.

ELECTRICAL DEVELOPMENT.—The Aigi Hydro-Electric Power Co., owned jointly by the Toho Electric Power Co. and the Daido Electric Power Co., has been formally inaugurated with Mr. Yasuzaemon Matsunaga, president of Toho Power, as first president. Capital is Y.5,000,000, and the concern will construct a power station at a point near the convergence of the Kiso and Hida rivers to generate 17,000 kilowatts of power.

JAPANESE RAILWAYS.—After a number of minor electrification schemes have been completed the conversion of the Tokaido main line from Numazu, the present electric terminus, to Kobe, a distance of 286 miles, is to be put in hand. The conversion will be completed by 1941, at an estimated cost of Y.50,000,000. A report from Yokohama states that the authorities have decided to run Diesel-electric cars on the State railways. About Y.1,000,000 will be set aside for the purpose, and three-coach trains will be used.

JAPANESE POWER PLANT.—Official sanction has been given to the Tokyo Electric Light Co. for the construction of a water-power station at Haramachi, Agatsumagun, Gumma Prefecture. The station will be capable of generating 22,800 kilowatts. Work will be started shortly at a cost of Y.6,000,000, and will be finished by the end of 1937. The Sanriku Hydro-Electricity Co., capitalized at Y.1,420,000, in Morioka, has decided to absorb the Kesen Hydro-Electricity Co., capitalized at Y.1,000,000, on an equal footing. The merger is likely to be the forerunner of mergers of small electric power concerns in the Tohoku district.

ANOTHER POWER PLAN.—The Kwansai Power Co., Ltd., of Japan, is said to have been granted a charter to harness the Mase River. Six other applications were refused.

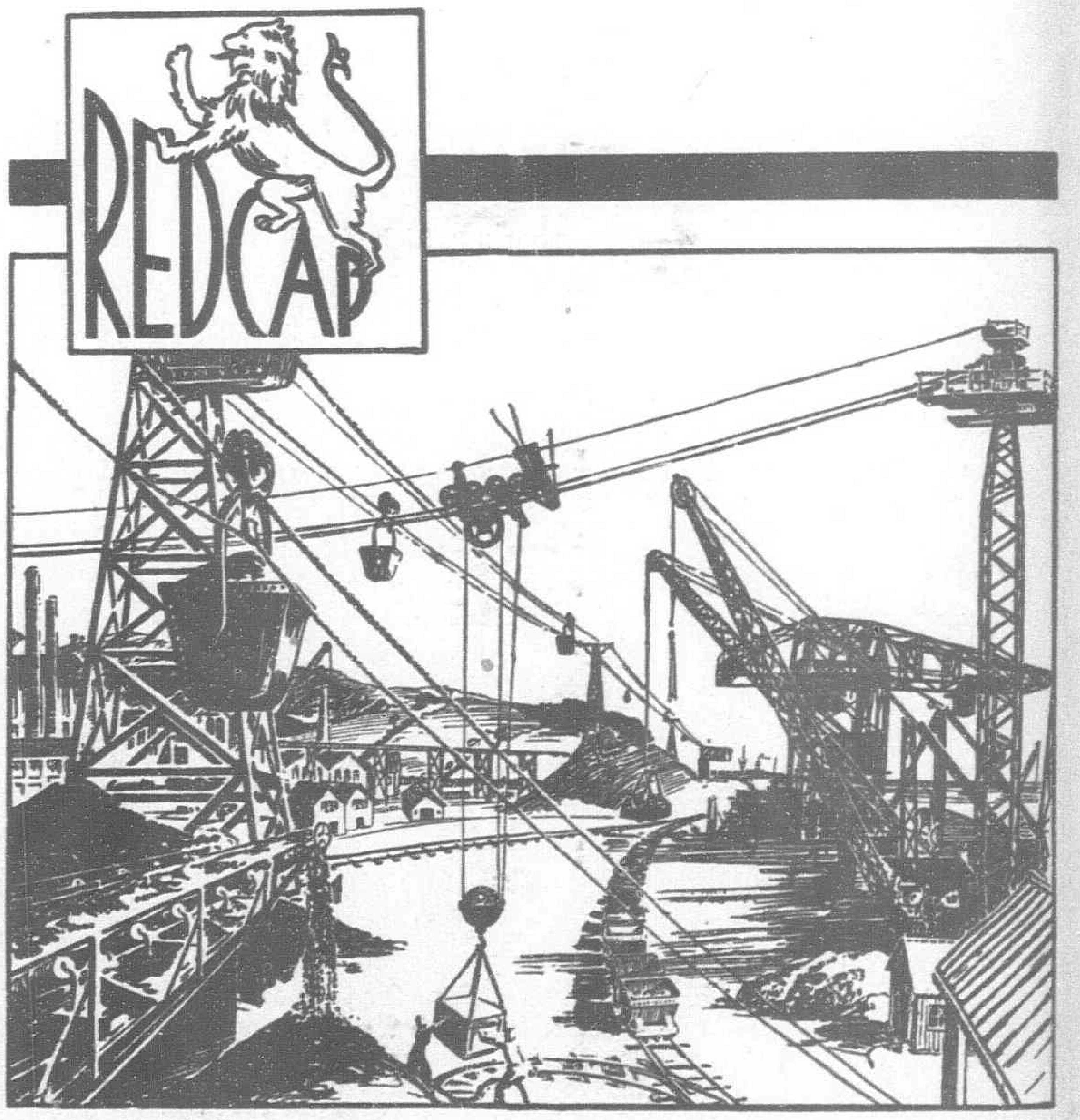
POWER PLANTS PLANNED.—The Governor of Toyama, Japan, has applied for permission to construct four hydro-electric power stations along the Wada River. The prefectural government intends to go into the power supply business. Total generating capacity will be 46,000 kilowatts. A dam, 350 feet high, the highest in the Orient, will be erected at Arimine. The volume of impounded water will be 2,700,000 cubic feet and the construction expenses about Y.24,000,000. The work will require six years to complete.

COMMUNICATIONS

RUBBER RAILWAYS.—Experimental stretches of rubber roadways laid down at Kuala Lumpur have, on the whole, worn well, but it has been necessary, here and there, to refix the edges with bitumen, states the report on the F.M.S. for 1934.

SZECHUEN-HUNAN HIGHWAY.—Surveys on the projected Szechuen-Hunan Highway between Chungking and Changsha, now in progress, will be completed by the end of November. Construction will then start so that the road may be finished next April.

TOKYO MERGER.—Amalgamation of Tokyo's municipal street-car lines, private suburban electric railway lines and city and suburban motor-bus lines under a new Y.600,000,000 corporation has been decided upon by a committee of the Traffic Control Council. Merger of 15 railway lines and 35 motor-bus lines is contemplated.



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